November-December 1996

# approach

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

Mech

## Bucket Airspeeds for Helos

## FRS Hornet Driver's Final CQ

## Who's Flying This Jet?

November-December 1996 Volume 41, Number 6

# approach Mech

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

On the cover: E-2C of VAW-125. *Photo by Rick Llinares.*

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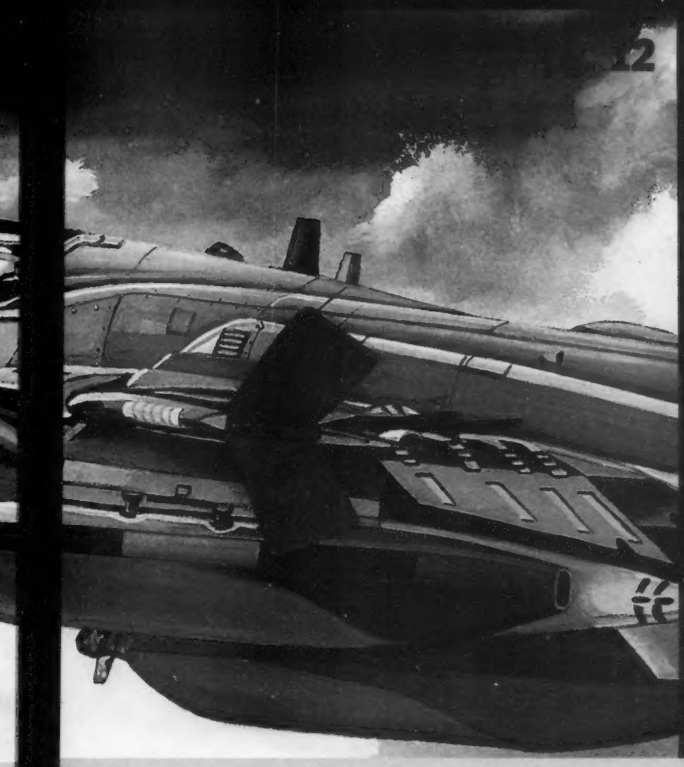

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# LESSONS LEARNED

**There are two ways to get smart. One is through experience – we call this "the hard way." The other is to learn through others' experiences. The second method is much easier on our machines and bodies.**

## Snake Bites the Dust

During a functional check flight in an AH-1W, the PIC was checking pedal authority. After entering a right-hand autorotation, he tried a power recovery but felt a power loss. While his observer-copilot in the front seat called out low NR, the PIC adjusted collective and throttles to regain NR, but he didn't confirm his engine status on the gauges.

As the NR continued to decay, he committed to a full autorotation to an unprepared surface. The helo never regained NR above 88 percent and touched down level at 40 knots. It rolled over after a main-rotor blade struck the ground.

The crew sustained only minor injuries, but the helicopter received Class A damage. Engineering investigators found the engines operated normally in the test cell, but they could not rule out an in-flight rollback or another malfunction.

**Lessons Learned:**

**1.** Use your instruments, trust your instruments. We usually hear this aviation adage when talking about flying under IMC conditions, but it applies at all times in aviation. If you rely on seat-of-the-pants intuition, you may be setting yourself up. If this Cobra's engine malfunctioned, did it at least have single-engine capability? If the PIC had been able to confirm a dual-engine rollback, would he have had more time to execute a better autorotation or attempt manual fuel?

**2.** Use your copilot. Better crew coordination may have prevented this mishap. On a functional test flight, the guy in the front seat is a valuable asset. Whether he's another Cobra pilot, a Huey pilot or a mech on the line, it doesn't matter. Use him, talk to him, brief him thoroughly.

**3.** Use risk management. This expression is not a buzzword. It's a way of thinking. All users of the T-700 engine should take this process on board. Think through any and all maneuvers and about how you can increase your margin of safety.

Capt. John Pitchford, USMC
Naval Safety Center

## Deadly Fall From a Helo

An NVG-training flight in a CH-53E included a scheduled hot-seat event, external lifts and confined-area landings, followed by a division troop lift. Because of the troop lift, passenger seats were down, reducing maneuvering space for the crew. Crewmen had stowed a bag of cranials, a dual-point cargo pendant and an aircraft-boarding ladder on the starboard side of the cabin, making it cluttered.

After two external lifts, the crew chief and the aerial observer unhooked their gunners' belts to swap positions. They didn't tell the pilots they were unstrapped and didn't turn on cabin lighting.

The observer moved forward along the starboard side and reattached his belt while the crew chief went aft along the starboard side. The Sea Stallion had transitioned to forward flight and was turning downwind when a signal flare fired by ground personnel in the LZ caused the pilots' NVGs to temporarily wash out, possibly distracting the crew chief as he moved aft.

As the helo was turning final, the observer discovered he was alone in the back and told the pilots. The crew chief had fallen out of the external hook-access hatch and was killed. His body was found the next day with the gunner's belt on. The attachment clip still worked.

**Lessons Learned:**

**1.** Once you unhook your gunner's belt in a maneuvering helicopter with an open hatch, you're not only violating NATOPS but you're taking your life in your hands. The reduced maneuvering space, a number of tripping hazards, and the darkness completed a scenario for disaster.

**2.** Although restricted by CH-53E NATOPS from unstrapping in flight, many crewmen routinely unstrap temporarily to do required duties, such as cabin-security checks, which is consistent with OPNAVINST 3710. In this mishap, however, there was no need to switch positions in flight. It was an unnecessary risk that could have been avoided by moving after landing or during a stable hover.

**3.** Even though this was a hot-seat event, the oncoming crew should have noticed the cluttered cabin. The aircraft commander is responsible for an effective preflight and, ultimately, the safety of the crew.

**4.** Contributing to this mishap was the lack of supervisory controls at the squadron and higher levels. The following controls were suggested:

- A NATOPS change requiring passenger seats be up for external operations.
- Cabin lights on during crew position changes at night.
- Aircraft in a stable hover or on the ground before crew position changes, including positive ICS communication with pilots.
- Procurement of a static cable for safe aircrew movement within the cabin, when required by the mission.

Cdr.(sel) Chris Spain
Naval Safety Center

# POP-UPS

## Unsafe 3 Inches ○ Super Stallions Return Underweight Board ○ Water-Survival Training Easier Traps ○ Ice Not Nice ○ 300,000 Traps

**Fit to Fly** – An improperly fitted torso harness can kill you. When an air wing recently checked the koch and SEWARS fittings for all aircrews, they found 14 aviators had three or more inches of rise. Several harnesses were grossly unsafe and needed large adjustments.

The aviators had donned their harnesses and were suspended and inspected for a safe fit in accordance with the Parariggers Technical Manual NA 13-1-6.2.

If the koch-fitting release mechanism was above the bottom edge of the helmet ear roll after simulated opening shock, the harness was considered unsafe. The distance was measured and recorded, as follows:

| Squadron | Percent Unsafe | Average Unsafe Distance/ Range, Inches |
|---|---|---|
| VFA | 35 (6/17) | 1.5/1 - 2 |
| VFA | 29 (5/17) | 1.2/0.5 - 2 |
| VFA | 32 (6/19) | 1.5/1 - 2 |
| VAQ | 74 (17/23) | 2.6/1 - 5 |
| VF | 60 (18/30) | 1.6/0.5 - 2.5 |
| VAW | 69 (20/29) | 2.0/1 - 4 |
| VS | 49 (21/43) | 1.3/0.5 - 3 |
| VQ | 36 (5/14) | 1.4/1 - 2 |
| Total | 51 (98/192) | 1.6/0.5 - 5 |

These results may be representative of all fleet torso-harness fittings. If so, your life depends on how quickly you get your torso harness fixed and adjusted. (LCdr. Tom Ganse, Naval Safety Center)

**Super Stallions Returning** – Most of the 200 grounded CH-53Es and MH-53Es are expected to be back in service by the end of November. Sikorsky Aircraft Corp. and NADEP Cherry Point had finished 70 of the Super Stallions by mid-September.

The Navy grounded the helos in June because of bearing problems that required servicing swashplate-duplex-bearing assemblies in the main rotor head.

Concern about the assemblies surfaced following a May mishap of a CH-53E on Sikorsky's flight field at Stratford, Conn.

Edited by Bud Baer. Contributors can contact him at (757) 444-3520 Ext. 7246, (DSN 564).

**Hornet Underweight** – An FA-18 settled off the cat to an altitude of 20 feet. Later, the pilot learned that he had rogered a weight board that was 10,000 pounds less than the aircraft weight. Checks and balances failed to catch the error. The Hornet flew off the angle 7 knots below minimum-end speed. Both plane and pilot survived what could have been a Class A.

**Training Under Review** – The Navy is reviewing physiology training and water-survival training for naval aviation to see if fleet needs are being met in the most cost-effective manner.

Results of the review will go to a quality management board, composed of the OinC of each aviation water-survival center, program model manager, TYCOM representative, CNATRA, BUMED and the OPNAV staff.

The board will analyze fleet inputs and, combined with other factors such as cost and manpower, determine how to restructure the training process, alter the frequency of training and consolidate training sites.

**Carrier Landings Should Be Easier** IFLOLS (Improved Fresnel Lens Optical Landing System) is undergoing testing and will be installed in USS *George Washington* (CVN 73) during her yard period. Increased resolution of the indicator display unit, which is 72 inches tall, will help pilots land on carriers.

The field unit was at Pax River for testing by VX-9 and NAWC test pilots. This IFLOLS unit will be moved to NALF Fentress, where CVW-1 aircrew can get used to operating with it. The IFLOLS will deploy initially with CVW-1 on board CVN 73.

The next unit will not be installed until FY98; after that, they will be delivered at a rate of about one a month. Only 20 land-based units are programmed.

**Ice Not Nice** – An urgent change recommendation to UC-12B-F NATOPS has spelled out what to do in severe icing. It notes that flight in freezing rain, freezing drizzle or mixed icing conditions can cause ice build-up on protected surfaces "exceeding the capability of the ice-protection system."

Recommended changes in OPNAVINST 3710.7Q call for these remedies:

- Request priority handling from ATC to exit the icing area.
- Avoid abrupt and excessive maneuvering.
- Do not engage autopilot.
- If engaged, hold control wheel firmly and disengage.
- If you get an unusual roll response, reduce the angle of attack.
- Don't extend the flaps. This could reduce wing AOA, and ice could form on the upper wing surface.
- If flaps are extended, don't retract them until the airframe is clear of ice.

**300,000 Traps a "Seamark"** – The Norfolk-based carrier USS *Enterprise* (CVN 65) recorded its 300,000th trap on July 19, when Tomcat pilot Lt. Kris Dorfman and RIO Lt. Nick Dienna from VF-103 hooked the No. 3 wire.

USS *America* (CV 66) decommissioned Aug. 9, accumulating 319,504 traps and 346,843 cat shots in 31 years.

# Smoki

*by Lt. Steve Gaze*

It was a gorgeous February morning off the coast of San Diego as we walked to our A-6E tanker for the first flight of the day. We were looking forward to a short one-hour hop followed by a trap and lunch. It was the last part of work-ups before cruise. We had been flying together during the whole detachment and were comfortable. We each had a cruise under our belts and trusted each other.

We started engines and got all our systems on line. With good Mode IV- and buddy-store checks, we taxied to cat 3. A Prowler was right next to us on cat 4. With takeoff checks complete, we were ready to go as soon as we had done a high-power wipeout. As we got into the shuttle and took tension, an S-3 launched off the bow. So far, so good.

As the engines started to spool up, I looked in my mirror for the wipeout. I noticed white smoke or steam back by our tail but thought, "Oh, catapult steam, no big deal." As I looked outside, I noticed troubleshooters and silver suits starting to drag hoses out. At this point, the pilot was shaking off the cat shot because of barberpoled flap indications.

Out of the blue, the voice from on high spoke: "Throttle back, 500, you're on fire."

As the throttles came back, AFFF was starting to shoot toward the aircraft. Thin traces of smoke and fumes started to enter the cockpit, and I told the pilot to secure the bleed-air valves.

Once again, the Boss spoke: "500, shut them down if you haven't already." We promptly secured the engines.

PHAN Timothy Altevogt

**"Throttle back, 500, you're on fire." As the throttles came back, AFFF was starting to shoot toward the aircraft.**

As we sat in the cockpit watching AFFF being sprayed on us, we had no communications inside or outside. Removing his mask, my pilot told me to safe my seat. He then suggested we unstrap, as well as remove our kneeboards.

After sitting for a couple of seconds watching the activity on the deck, we decided the best place to be was outside the jet. First, we tried to activate the battery-operated auxiliary hydraulic pump, to no avail. The smoke and fumes were starting to thicken. Next, we tried to manually pump the canopy open. The canopy opened about one inch and stopped. Within 10 seconds, the cockpit filled with gray smoke so thick you could not see the inside of your helmet visor. We tried to continue pumping the canopy open, but it would not move. I decided to jettison the canopy.

Removing my mask with my right hand, I searched for the jettison handle with my left as I yelled, "Jettison, jettison!" to my pilot.

After what felt like a lifetime searching, I found the handle. Another jettison call and I flipped up the safety guard and pulled.

There was a soft pop and the smoke started to clear. I looked to my right and saw a Sailor in a silver suit on my boarding ladder looking at me. As he climbed down, I stood up and quickly followed him down the ladder. Clearing to the front of the airplane, I met my pilot and we got out of the way. As we left the flight deck, I was startled when we passed a stretcher going to pick up an ABH2. The canopy had knocked him off the back of the airplane.

What happened? As we went to high-power on the catapult, the starboard engine's tailpipe, which had just been replaced, exploded. The explosion destroyed electrical and hydraulic lines and started a fire that burned for 16 minutes. The smoke in the cockpit came from the engine bay, up the access hole, along the top of the fuel cells, and into the cockpit when we broke the seal trying to open the canopy.

It takes longer to read this story than it took for the whole event to happen. The total time from explosion to egress was less than two-and-a-half minutes. Of that time, 35 to 45 seconds were spent sitting under a smoke-filled canopy. We were fortunate; our only injuries were smoke inhalation and a sore neck. However, the crash crewman who was knocked off the airplane busted his teeth.

Many in the A-6 community feel that the best place to be in a flight-deck fire is in your cockpit. Just sit and wait for the crash crew. That belief comes from experience with fuel-fed fires that are quickly and easily extinguished. This fire was neither quickly nor easily extinguished.

The man who was injured by the canopy was trying to release it manually. I had no idea he was back there. From experience, I knew it took a couple of strong men to open that canopy manually, and it never entered my mind as a means of egress in this situation. I felt that our lives were in danger and that the only way to get out was to jettison the canopy immediately. The crash crew did not want to jettison the canopy because it might hit people or aircraft on the flight deck. This misunderstanding and lack of communication led to the only serious injury of the whole incident.

Decide when you are going to stay with the jet and when you are going to get out. Your plan can vary depending on your location. On the flight deck, response is instantaneous, but what would the delay be in the hold-short at your home field? Also, do the aircrew in your squadron know what the crash crew will do, and does the crash crew know what the aircrew are expecting?

Finally, blindfolded cockpit drills can save your life.◀

Lt. Gaze flew with VA-95 and is now assigned to VAQ-129.

# But Did I Qual?

*by Lt. Zeno Rausa*

It was late at night on the carrier in the Gulf of Mexico. I was one night-trap away from completing the FRS syllabus, receiving fleet orders and having a good time with the guys back at the beach. I was supposed to hot-seat for the final pass, then fly off to NAS Pensacola. Thank goodness for clear nights and plenty of fuel.

Before I went up to the flight deck, maintenance told me that my bird had an intermittent HYD 1B caution indication.

"Probably just a gauge out of rig," a troubleshooter said. The system had been checked before the previous pilot had flown the Hornet out. This experienced pilot briefed me on the flight deck, telling me the HYD 1B caution was not a systems problem.

I was still just a RAC, a replacement aircrew, but paddles, maintenance and even NATOPS, which says a HYD 1B "offers no effect on systems operation for single failure," all reassured me.

As I sat in tension, I methodically went through the checklist and saw everything was good — even the HYD 1B — so I turned on my lights.

Immediately after launch, "Deedle, deedle" sounded in my headset. On the instrument panel, the left display presented a CNI (comm-nav-interface) caution, accompanied by the HYD 1B caution, which was now steady.

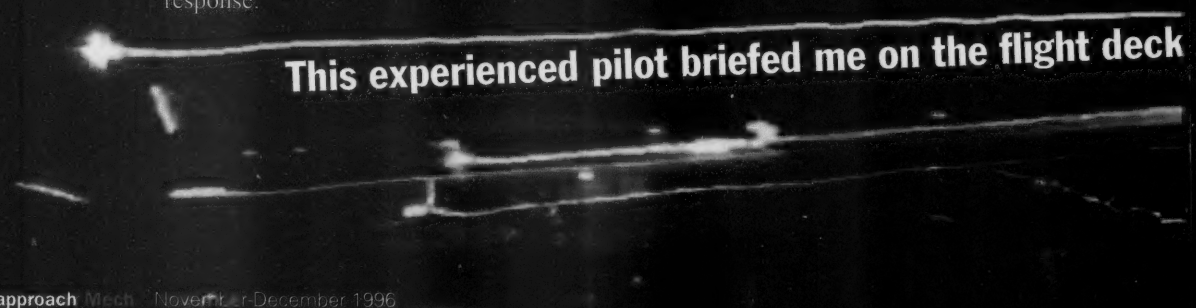
I reported airborne, but heard no response.

"Passing 2.5," I called. Still no answer. I heard a lot of people, so I couldn't be NORDO. I checked the cockpit. The hydraulic needles were matched and steady, there were no FCS failures, I had plenty of fuel, and my radio frequencies were correct. But wait. Where was my TACAN? No course line, and mother's TACAN symbol was gone. The TACAN and ILS needles were also missing.

I cycled all the buttons on the up-front control (UFC), but this part of the panel would not indicate a change. Now the vague remark in NATOPS made sense: CNI interface failure — UFC may not operate in some or all modes.

Estimating 10 miles from the ship, I put the primary divert's waypoint on the nose and set the ADF switch on COM 1. I figured with all the chatter out there, I'd pick up a needle swing. But there was no needle on the multi-purpose color display. I had plenty of fuel, and the weather at Pensacola was good. I was prepared to divert if I was NORDO.

Somehow, after several long minutes, I got departure and requested a switch to a Hornet rep. Repeated exchanges with departure pointed to another problem: my radio frequencies indicated a change in the UFC, but the changes weren't taking place. The UHF was stuck on a single frequency. The rep found me on departure's frequency



**This experienced pilot briefed me on the flight deck**

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The override function showed a frequency change just like the UFC, but the frequency was actually still frozen.

"I recommend flying to the beach NORDO," I said to the rep.

"Stand by," he replied, then, "No, we need you to get your quals. Get vectors to marshal for your last trap."

I nearly swallowed my tongue. I felt lost without bearing and distance to the flattop. The night seemed darker, and I sensed a magnetic pull from the water below.

I received vectors for marshal and clearance inbound. I got a single distance call at 20 miles that caged my internal gyro. Then I heard a new controller, who apparently was unaware of my problems. The heavy radio chatter made things worse.

To my relief, I picked up ACLS needles and figured I was four miles from the ship. I flew the needles down, and there was the carrier. All I had to do was fly a rails pass to touchdown and I'd be a hero.

I was on the rails right up until I called the ball. Hearing no "Roger, ball," I repeated the ball call. I spent too much time on the radio and not enough on flying the meatball, resulting in a "settle in the middle, too much power in close, bolter!"

I was mad at myself, yet I was sure I would pick up ACLS for the next pass.

There was another controller switch. The radio chatter was worse than before. I worried about my position in the bolter pattern.

Estimating four miles downwind, I heard, "226, left turn to intercept final bearing of 050 — break — 303, four miles, lock on, call your needles." It was a tight hook. It was busy out here. Did the ship know I was negative azimuth?

I dirtied up and completed a 180-degree turn, rolled out and waited for heading calls. No needles and no calls. I ate up precious distance, knowing I had to push over soon. I thought the glideslope was below me, but I was reluctant to descend without clearance.

"Approach, 226 has negative azimuth, call my glideslope." My transmissions became more emphatic.

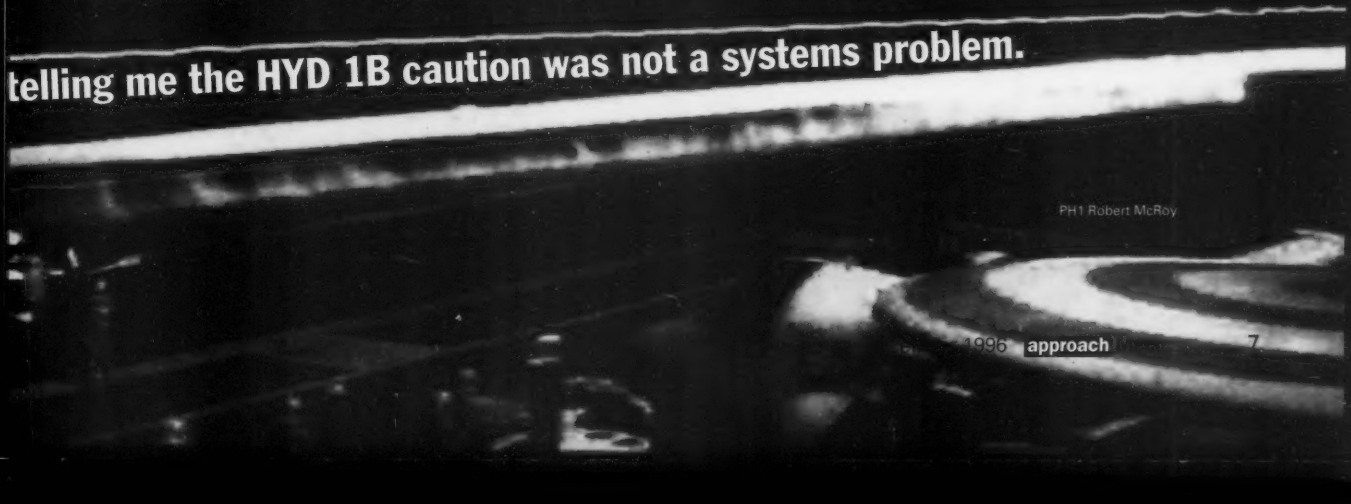
Silence.

I called again. No answer, but the outline of the carrier loomed, and I was on course. Glideslope remained a problem.

Mother was creeping down the HUD, going below three degrees.

We had practiced plenty of self-contained approaches, but never without DME. I was told to stand by, then to take angels 6. Now it seemed the ship was beneath me. Mother was six degrees down on the HUD, twice that of a normal approach. I figured they were giving me an ASR because I didn't have a lock-on.

**telling me the HYD 1B caution was not a systems problem.**



PH1 Robert McRoy

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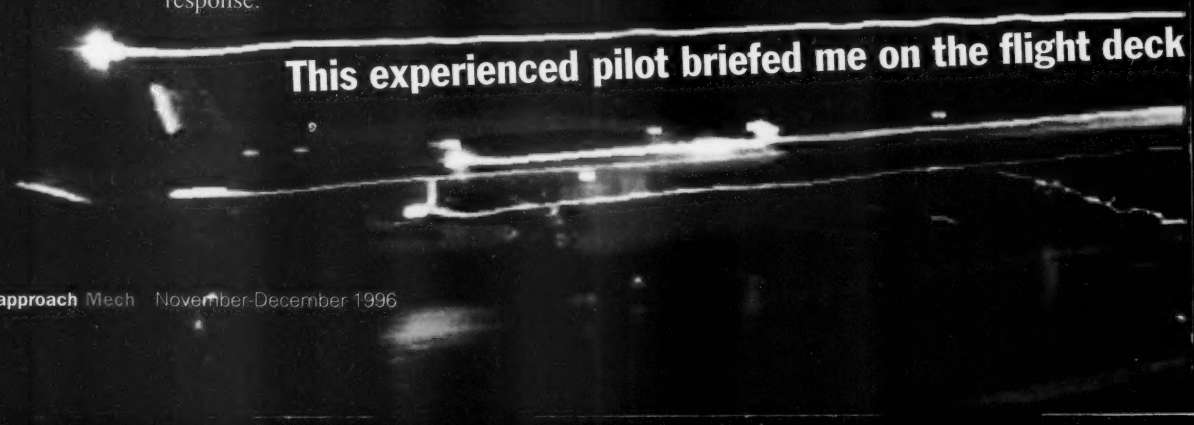

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I was mad at myself, yet I was sure I would pick up ACLS for the next pass.

There was another controller switch. The radio chatter was worse than before. I worried about my position in the bolter pattern.

Estimating four miles downwind, I heard, "226, left turn to intercept final bearing of 050 — break — 303, four miles, lock on, call your needles." It was a tight hook. It was busy out here. Did the ship know I was negative azimuth?

I dirtied up and completed a 180-degree turn, rolled out and waited for heading calls. No needles and no calls. I ate up precious distance, knowing I had to push over soon. I thought the glideslope was below me, but I was reluctant to descend without clearance.

"Approach, 226 has negative azimuth, call my glideslope." My transmissions became more emphatic.

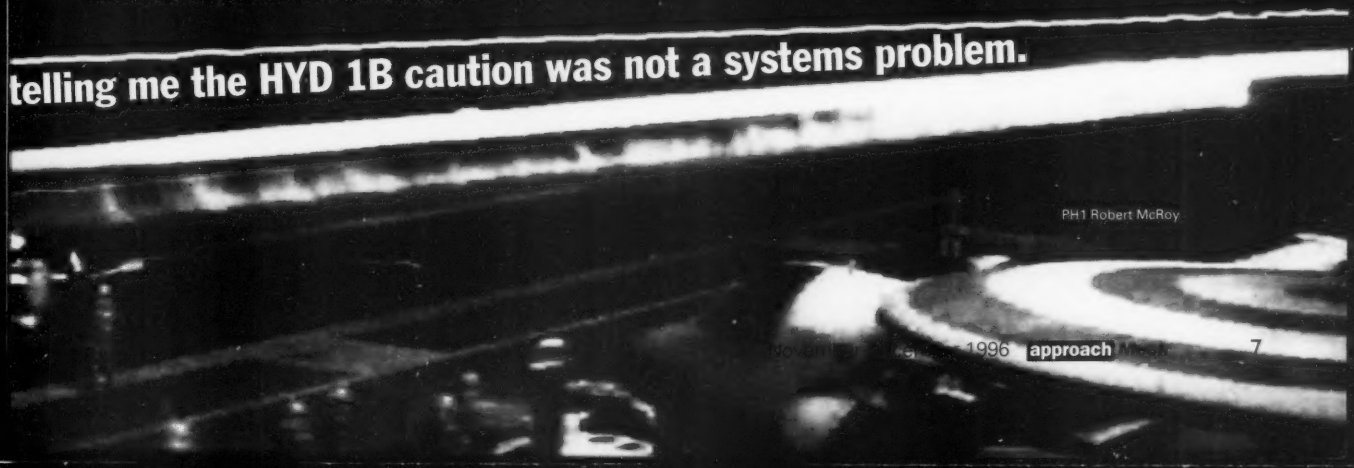
Silence.

I called again. No answer, but the outline of the carrier loomed, and I was on course. Glideslope remained a problem.

Mother was creeping down the HUD, going below three degrees.

We had practiced plenty of self-contained approaches, but never without DME. I was told to stand by, then to take angels 6. Now it seemed the ship was beneath me. Mother was six degrees down on the HUD, twice that of a normal approach. I figured they were giving me an ASR because I didn't have a lock-on.

**telling me the HYD 1B caution was not a systems problem.**



PH1 Robert McRoy

I should have waved off right then. Approach beckoned nonetheless.

"226, three-quarters of a mile, call the ball."

"226, clara, 7.3," I responded.

I expected a waveoff but heard, "You're high. Bring it down."

**I should have waved off right then. Approach beckoned, nonetheless.**

This time I swallowed my lips. I felt horrible as I started to descend. I had left the nest of a typical pass and now ventured where I had never been in training.

"Clara," I called.

Paddles replied, "You'll have a ball shortly. Power."

I went to military power, picked up the ball as it descended swiftly through each cell of the Fresnel lens, and met the flight deck in a cushioned landing, catching the ignominious No. 1 wire.

I taxied forward of the island, and was directed to shut down the starboard engine so that the nav gear could be repaired. Then they told me I'd be launched for Pensacola. Did I have my qual?

Later, paddles assured me that though mine was not an ideal landing, the fact that I had other problems during the circuit was a mitigating factor. Then he told me I was carrier-qualified.

I learned a lot from my experience at the boat.

First, know your systems. I had never even heard of the communication-systems controller (CSC) before this sortie. The CNI caution and loss of listed equipment were the only indicators of a failed CSC.

Back on deck, the self-test system even said, "Go," though the CSC had failed. The CSC provides synchro-to-digital, analog-to-digital, digital-to-analog, or coded signal-to-digital conversion for automatic direction finder, TACAN, ILS, attitude-reference indicator, electronic altimeter set, radar beacon and augmenter.

Maintenance determined the CSC was "bit-latched." When this happens, the signal conversions are degraded and preset radio frequencies, data link, IFF and avionics channels remain.

There was little else I might have done, but I could have tried the manual ILS switch. The people in avionics were not sure whether this would have had the same result as the back-up UFC.

I also could have estimated the position of the ship by switching to waypoint 0, which stores the ship's position at the time of the cat shot.

A second lesson was that communication is key. I should have spent more time in marshal troubleshooting and planning. I should have ensured that all controllers were aware of my problems, eliminating excess comm at critical times in the approach. I would have also asked for distance calls, especially on final. Then I could have shot a fabricated self-contained approach, similar to those practiced ashore.

A third consideration was that fuel is time. I had more than enough fuel to make five approaches. Take your time, set yourself up as best you can and wave off early if it looks bad.

Fourth, get-aboard-itis is dangerous. Though the HYD 1B posed no serious problems, it haunted me throughout the flight. Make a decision early on how serious the situation is — in my case, before accepting the jet. Always feel good about taking your jet. If you don't feel good about it, don't launch. Decision making is tough in cases like this. But why add doubt to your situation, especially in a peacetime environment? ◄

Lt. Rausa flies with VFA-94.

*Most of us know how to handle the pressures of get-home-itis, but it seems harder to recognize and fight its operational cousin, get-the-X-itis. ORM asks us to assess the risks (pilot distraction leading to controlled flight into the water or ramp strike) and reduce these risks. An FRS pilot should not take a jet that he knows will continuously distract him. FRS pilots should not be expected to troubleshoot jets at night behind the boat during their initial CQ. Even if there was some justification for continuing the mission, the Hornet rep should have done the troubleshooting in the comfort of CATCC. This young aviator's predicament was apparently not explained to the people who could have helped him.*

*Finally, continuing the approach when the ship is six degrees below the HUD horizon line requires you to break the minute-to-live rule. Not a good idea when you're dirty, and it justifies taking your own waveoff.— LCdr. Tom Ganse, FA-18 analyst, Naval Safety Center.*

# Do You Know Your Bucket Airspeed?

*by LtCol. R.E. Joslin*

As the instrument panel showed a transmission-gearbox chip light, the H-2's transmission-gearbox failed and the crew ditched a quarter of a mile from the ship.

The mishap board checked the NATOPS manual to find the best airspeed to delay such a failure over water. However, neither the H-2 manual nor any other helicopter NATOPS included clear guidance in this area. The investigation report suggested that the optimum airspeed might be the one that demands the lowest power, thus the smallest mechanical load.

Looking at Figure 1, we see the generic power-required-versus-airspeed curve for helicopters shows a dip, or "bucket," in the curve, delineating the lowest-power requirements and associated airspeed.

This bucket airspeed is the optimum over-water airspeed to fly if you suspect a transmission-gearbox problem. Some NATOPS have power-versus-velocity curves plotted for specific situations, while others cleverly disguise these curves by reversing the axes or imbedding them in a multivariable chart.

Table 1 lists estimated bucket airspeeds extracted from NATOPS for various helicopters with typical operating gross weights at sea level. This bucket airspeed also offers favorable performance characteristics for emergencies such as engine failure, when you want to increase fuel endurance or establish a survivable descent rate into the water.

Power required is directly proportional to fuel flow. Therefore, the bucket corresponds to the point of minimum fuel flow or maximum endurance to get back to the ship. The bucket is the point where power required or drag is minimum, so it also equals the minimum descent airspeed.

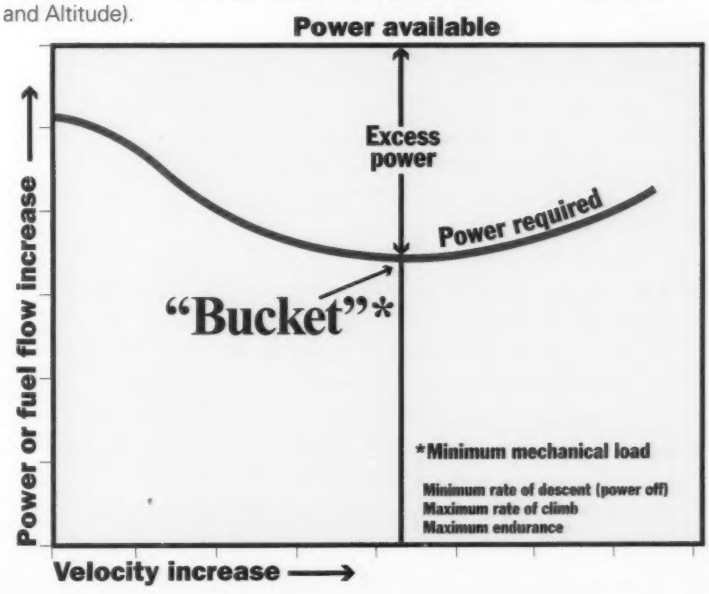
Once secondary indications occur — like grinding sounds or overheated oil — and catastrophic transmission-gearbox failure is imminent, then the prudent action is a controlled ditching. However, when you are over water with a suspected transmission-gearbox problem, you might consider pulling the bucket airspeed out of your bag of tricks to delay the gearbox failure and provide maximum endurance.◀

LtCol. Joslin is the operations officer at the Naval Test Pilot School.

*Table 1.* Minimum Power-Required Airspeed at Standard Sea Level.

| Aircraft | Gross Weight (1,000 lbs.) | KIAS Minimum Power Required |
|---|---|---|
| UH-1N | 8-10 | 57-62 |
| AH-1W | 12-15 | 66-70 |
| SH-3H | 16-20 | 65-70 |
| CH-46E | 18-22 | 67-72 |
| C/MH-53E | 40-60 | 64-74 |
| SH-60B | 17-21 | 62-70 |

*Figure 1.* Power/Fuel Flow versus Airspeed (Constant Gross Weight and Altitude).



# It Never Rains in

You never see rain in California! I recalled those words as I walked to the jet while looking up at the steely gray overcast. I was sure those flashes off to the west were just remnants of the scattered thunderstorms that were supposed to be making their way through the area. My RIO and I had just briefed our first night CQ for the first at-sea period of the turnaround. We manned up while the first few drops of rain started to fall.

As we departed Miramar on our way to the boat, we were quickly surrounded by the darkening clouds. Approaching the carrier, it was becoming clear the "scattered thunderstorms" had decided to reconvene, and the reunion was taking place much closer to our new home than we would like. However, because of the reduced visibility, it was difficult to tell just how close.

We pressed on and entered the marshal stack along with a few of our air-wing brethren. As we listened to the radio, it quickly became clear that we were all seeing the same thing.

The marshal stack had been conveniently placed on the edge of a thunderstorm cell. Even though you could see the glow of SoCal on the outbound leg of the holding pattern, when you turned inbound, the monster would swallow you. The strong updrafts and downdrafts would be accented by bright flashes of lightning across the windscreen. We were concerned about icing, because we were holding just above the reported freezing level, but there was no visible buildup on the aircraft, and we had activated the engine anti-ice system just after takeoff.

Several of us in the marshal stack told the ship we weren't comfortable holding in this weather, mostly because of the lightning, so the ship decided to move the stack. Unfortunately, they moved it about 10 miles west, which turned out to be even deeper into the storm.

Meanwhile, my RIO was working on getting us to our push point on time, and I focused on keeping the jet in the sky. We decided we were probably in for one more trip through the gauntlet before we could start our approach. However, the boat was reporting significantly better weather than we were experiencing so we assumed that things soon would be looking up.

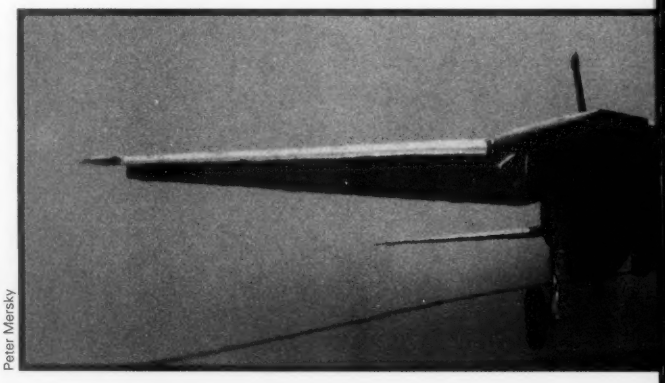
We commenced our approach (on time… I swear!), and our hopes of clearer skies were quickly dashed. The closer we got to the ship, the worse the weather. We encountered a few moderate rain showers on the way down but were already well below the freezing level, so our concerns about icing had lessened.

As we descended, we heard the two aircraft in front of us call "Clara" at a half mile, followed by a waveoff. I guessed our fate would be similar, but was too concerned about the approach to worry about it much. A minute later, CATCC spit out that all-too-familiar phrase, "Three-quarters-of-a-mile, call the ball."

I took myself away from my instruments to look through what appeared to be a rain-streaked windscreen with a few dim lights off to one side. I was a little surprised because I had turned on the rain-removal system a few miles back, and we had only encountered what appeared to me to be light to moderate rain. But the picture in front of me looked like a deluge.

I was about to call, "Clara" when I leaned over to the left and found that I could see the boat (and the ball) through a one-inch slot down the left side of the windscreen. I felt that I could see well enough to make a safe landing and sure didn't want to fly in this stuff anymore. I told my RIO that I had the ball, and the reply of "Roger, ball" was soon followed by us snagging the 2-wire.

Right about the time my RIO finished expressing his extreme pleasure for a successful trap, we both noticed that the ship's fire-rescue crew was heading our way, and my engine instruments were telling me



Peter Mersky

# California?

by Lt. Steve McShea

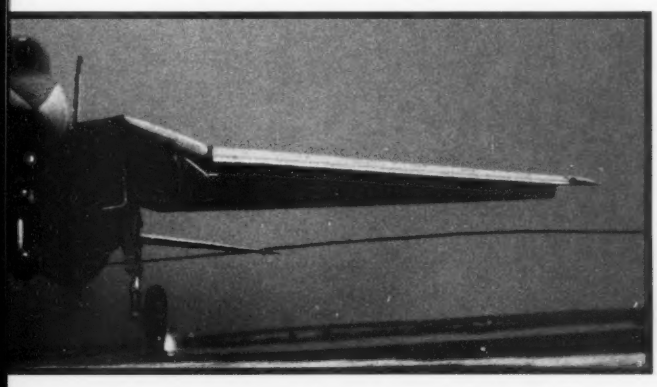
that things weren't all hunky-dory. Our first reaction was that they had no business interrupting our celebration, but that thought quickly disappeared.

We didn't know that upon our arrestment, a spectacular fireworks show spewed from both our exhausts and the chunks of molten metal that we shot down the flight deck gained us immediate notoriety. To add insult to injury, I could see, in the glow of the deck lights, that what I had originally thought was a rain-streaked windscreen was actually shattered!

After shutdown, the postflight inspection revealed two severely FODed engines and a damaged center windscreen. A more thorough inspection an hour later discovered several brick-size chunks of ice still lodged in the engine intake ramps. The initial investigation determined ice had accumulated in the engine intakes during the flight and had dislodged when the aircraft hit the deck.

The PLAT tape of the arrestment revealed the starboard motor was damaged just as the aircraft crossed the ramp and before it touched the deck (possibly because of a large power addition that could have dislodged the ice just before landing). We couldn't determine why the windscreen shattered. However, the probable causes were either rapid expansion from the rain-removal system or the impact of a large piece of ice. There were several large scratches along the canopy bow suggesting that something had hit the jet.

At first, I was much more concerned with the shattered windscreen than the engines. If I hadn't been able to find that small strip of unbroken glass to look through, I would have had a very difficult time getting aboard and probably would have been faced with a long divert to a wet runway with very limited forward visibility.



If this had been blue-water ops, my options would have been even scantier. The ice buildup had been invisible to me right up to the time I hit the deck. However, after reviewing the PLAT tape and seeing the sparks shoot from my exhaust as I crossed the ramp, it became clear that if I had waved off my first approach, I could have faced a dual-engine FOD at 100 feet above the water instead of safely in the wires. The shattered windscreen would have been the least of my worries.

In the days that followed, I talked to some of the people that played a role in my colorful arrival. I learned the reason the ship marshaled us next to a storm, then moved us even deeper into it, was that they never saw it on their radar. There was little moisture associated with the cell we were holding in, so the controller's radar painted no significant weather at our location. And because we were in the clouds most of the time, we couldn't help find a better holding location.

In hindsight, there may not have been a clear area to place 15 aircraft in a holding pattern anywhere near the ship. There were other aircraft up there with me that had troubles of their own, including an FA-18 that was probably hit by lightning. The controllers were tasked to their limits. I strove to find out why the decision was made to conduct carrier qualifications in weather like that to begin with, but had limited success in finding an answer.

It appeared that as the weather quickly deteriorated, most people were busy with their own jobs and lost sight of the big picture. I include myself in that list. To make matters worse, I also fell victim to that well-known affliction of I-can-hack-it-itus. I was not alone in that marshal stack, and I have to admit that every time my RIO and I discussed calling "uncle," a driving force behind my decision to stay was "If they can hack it, so can I".

How many times have I read about someone trying to hack it and killing themself? Probably about as many times as I heard, "You sure are lucky you caught that wire!"◄

Lt. McShea flies with VF-24.

# Just Call

## He called the slats moving on the right, and I called them moving on the left.

I had just checked into my first fleet squadron after completing the EA-6B FRS. After a few fam flights, I was starting to get comfortable with my new surroundings and crew. On one flight I was Dash 2 in a section low-level, crewed with a senior WTI right-seater.

We planned on a 10-second running rendezvous because the north runway was active, precluding a section go. We also planned a flaps-down turn because departure usually gave an early turn.

The weather was marginal at the field, 800 to 3,000 feet scattered, 2 miles visibility in light rain showers. The weather on the route was forecast to be good. We briefed and manned up.

As our section taxied onto the runway, I realized it was going to be hard to maintain sight during the rendezvous because of the marginal weather. My lead ran up his engines and kissed me off. I checked the clock and waited. Seven seconds later (I thought the extra three seconds would help me expedite the joinup and keep us from losing sight on takeoff), I was off the brakes and at military power chasing my lead. The right turn helped me join up even more quickly. I cut to the inside of the turn, kept up the knots and got on bearing.

Wings level out of the turn, we cleaned up with our lead about 300 feet ahead of us. We were in and out of the scattered clouds, temporarily losing sight but keeping up our knots to get into parade position before the weather really got thick. Then the fun began. Over our tactical frequency, lead told us he had to bunt for barberpoled slats, a common occurrence in the Prowler community.

He began to slow down and use positive and negative G's to get his slats up. I quickly realized that I was going to overtake him. I went to idle and extended my speedbrakes. I was slowing down, but not quickly enough. I slowly passed my lead and ended up about 100 feet ahead of him with my airspeed slowing through 200 knots. We were constantly in and out of the scattered clouds trying to maintain sight.

Slowing through 190 knots, I told my right-seater I was going to extend the flaps and slats because we were getting so slow (stall speed is 164 knots, wings level in a 54,000-pound aircraft).

He called the slats moving on the right, and I called them moving on the left. Passing 175 knots, I felt the jet start buffeting and noticed the stick was not responding. AOA was 13 units.

I immediately unloaded, went to military, and retracted my speedbrakes. One of the backseaters said our slats were only cracked about two inches. We leveled off at 1,000 feet AGL, 250 knots, called lost sight, and climbed.

We regained our composure during the climb. At 6,000 feet, we found ourselves on top of the layer. Our lead was about a mile ahead of us. We told him our flaps and slats failed to extend normally and to fly the low-level without us.

I began to dump our 18,000 pounds of gas and headed back over the field to troubleshoot. We checked the circuit breakers, and all of them were in. I checked the flap handle and it was down. We double-checked the slats, and they were still only cracked about two inches. I then told the crew what I did when we started to get slow. We all realized what was wrong at the same time. I never selected landings on the isolation valve before I put the flap handle

down. The Prowler has an isolation valve that automatically switches to landing when you lower the gear handle. When the isolation valve is in the landing position, the combined secondary hydraulic system is pressurized, giving power to the flaps and slats along with other aircraft systems.

When you leave the gear handle up, you have to reach below the gear handle and manually select landing. Residual pressure in the system caused the slats to slightly extend, making me and my right-seater think the slats and flaps were extending normally. The entire crew was so concerned with maintaining sight of our lead that no one doublechecked the slats for full extension.

Me

I secured the dumps and told our lead we had solved our problem, but we were too low on gas to rejoin and continue the mission. We landed with our tails between our legs.

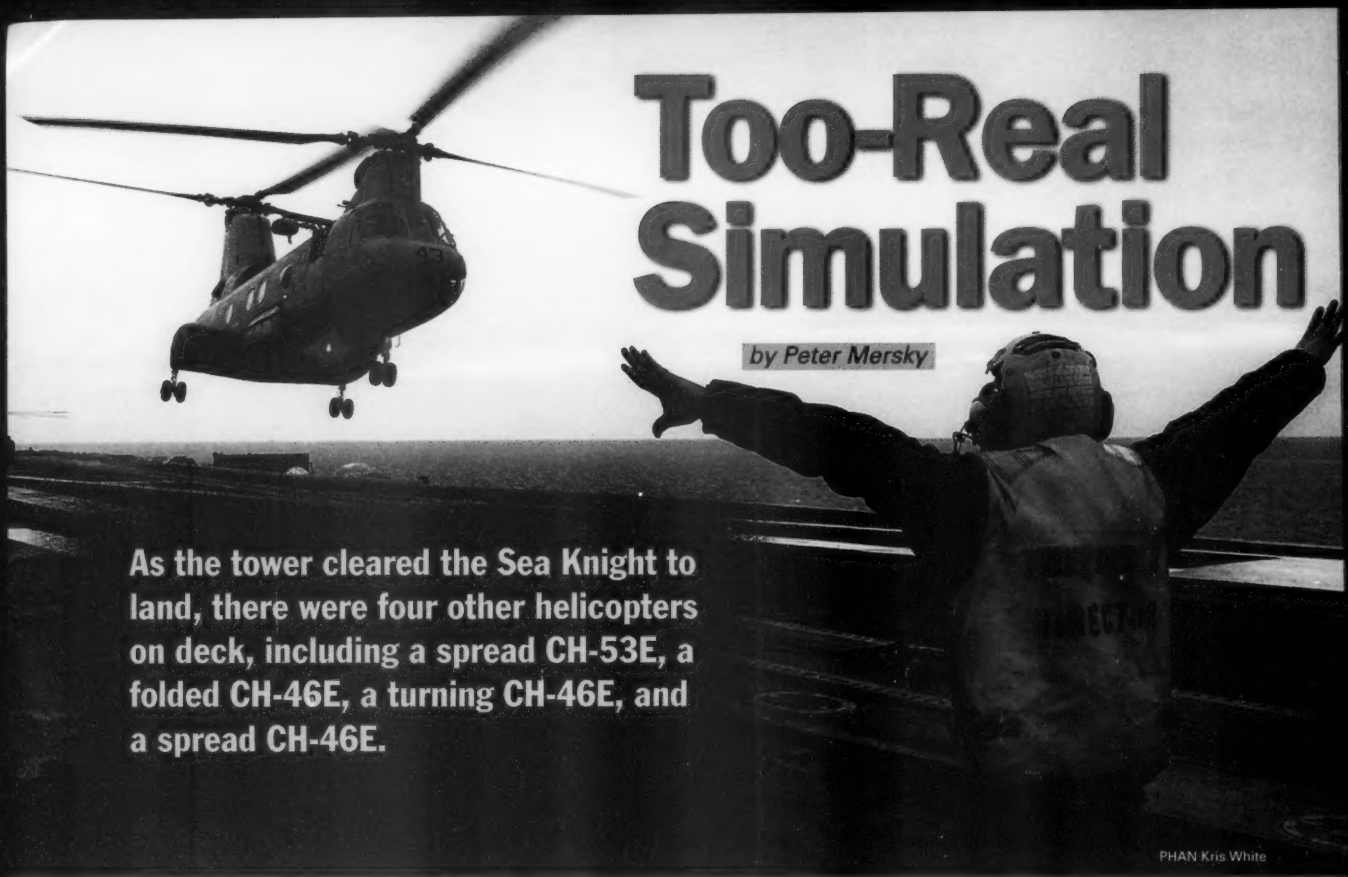
What lessons did we learn? First, a 10-second running rendezvous is supposed to be 10 seconds, allowing greater separation in case the lead aircraft aborts. Furthermore, an expedient rendezvous is good, but there is no reason to rush joinups, especially during marginal weather. The training command days of having to get aboard as quickly as possible to get an above are over. If bad weather hinders the joinup, have a backup plan to rendezvous on top of the layer.

Finally, aircrew coordination can prevent many mishaps. You can designate different crew members to monitor your change-of-configuration airspeed and to stay padlocked on your lead, wingman or other traffic. The main reason we have multi-crew aircraft is to reduce the pilot's workload and let him concentrate on flying the airplane.➤

Capt. Obser flies with VMAQ-4.

**...no one doublechecked the slats for full extension.**

*by Capt. George E. Obser, USMC*



# Too-Real Simulation

*by Peter Mersky*

**As the tower cleared the Sea Knight to land, there were four other helicopters on deck, including a spread CH-53E, a folded CH-46E, a turning CH-46E, and a spread CH-46E.**

PHAN Kris White

The first part of the approach seemed OK, but as the Sea Knight reached short final, the crew chief noted they were descending too quickly.

"Watch your rate of descent," he warned.

At the deck edge, and just before starting the slide between aircraft on spot 6 and spot 4 for a no-hover landing, the copilot stopped before arriving over spot 5. The helicopter started settling below the deck-crossing altitude, and the crew realized they were in trouble.

The XO (a major) had taken two junior pilots on a NATOPS check flight. They briefed at the civilized hour of 0915 and discussed the maneuvers they would be doing, including AFCS-off flight with simulated single-engine (SIMSE) landings to a spot. The major emphasized that once the AFCS had been turned off, it would probably stay off for the rest of the flight.

One JO said that he didn't feel good about making SIMSE landings to a spot without the AFCS. However, the XO said that the emergency could come up, so they should practice the maneuver. The major also said he would place the engine condition lever (ECL) in the "fly" position if the approach began to deteriorate. He declared that he had done SIMSE landings to a spot on an LHA. With this discussion, the XO thought the junior aviator felt better about the exercise.

The major sat down with the crew chief for a separate, detailed NATOPS brief. The CH-46E would be 217 pounds over max SE weight to maintain level flight. Although they did not compute maximum SE weight for HIGE or HOGE flight, they thought they would have the capability for HIGE after being airborne for a short time and burning down fuel.

After the brief, the copilot who had expressed concern about SIMSE operations sought to reinforce the major's encouragement by discussing the exercise with his squadronmates. None of his friends seemed worried.

Meanwhile, the XO had gone over the flight with pri-fly, especially the EP scenarios. He told the Air Boss that any approaches that deteriorated beyond safe parameters would be waved off before short final. But apparently, neither the Air Boss nor Mini realized that the briefed SIMSE landings would have the helicopter crossing the flight deck with the affected engine at idle. With the ECL in "start," the briefed simulated exercise would be an actual single-engine approach.

After launch and a 1.2-hour NATOPS instrument check flight, the two copilots switched seats. The XO

made the first takeoff, approach and landing, then gave the controls to the new copilot. After a series of approaches, waveoffs and landings, the HAC turned off the AFCS.

The copilot flew four landing approaches, and the XO made three. The copilot also made a SIMSE failure to a landing while hovering over a spot (cut-gun maneuver), as well as a simulated maximum-load takeoff, which required a deck run. Everything seemed to be in order.

After this takeoff, on the upwind leg, the HAC started the SIMSE portion by retarding the No. 1 ECL from fly to start. The copilot asked for and got permission from the tower to extend his upwind leg. Running through NATOPS, the copilot verified single-engine capability and power by decreasing collective until Nr drooped to 98 percent. He saw that the single-engine torque (power) available was between 128-132 percent.

The copilot made the required checks on the extended downwind. He had slowed the aircraft to 50 KIAS and climbed to 400 feet. The normal pattern was 80 KIAS and 300 feet, however, and he increased speed and descended to the standard altitude.

During this time, the copilot and HAC discussed the best landing and approach, which was to cross the ship's stern for a run-on landing to spot 7 or spot 8. Spot 8 had another aircraft on it, preventing the copilot from crossing the stern. He said he would circle until he got the preferred spot. But the HAC said he now had a simulated engine fire that would not give them the luxury of waiting.

The copilot called the tower. "Cutter 10 is abeam, left seat, simulated engine off, stab off." He later said that he felt comfortable with the AFCS off.

"Roger, 10," the tower replied, "charlie spot 5, left seat. Winds 30 degrees port at five knots."

As the tower cleared the Sea Knight to land, there were four other helicopters on deck, including a spread CH-53E, a folded CH-46E, a turning CH-46E, and a spread CH-46E.

LHA NATOPS says that when approaching a spot immediately in front of an occupied spot, the pilot of the landing aircraft should (a key word) end the final portion on the 45-degree bearing at a point directly abeam the intended landing spot (in HOGE). The final transition should then be made by sliding sideways to a hover over the spot (in HIGE). NATOPS also says the pilot in the right seat should make the landing.

However, NATOPS procedures using the word "should" are only recommendations, and the two pilots believed they had HIGE capability as they set up their approach. The approach quickly went sour as the crew chief cautioned the pilots to check their descent rate, then warned, "Slide right, slide right!" He called for a waveoff, but the aircraft continued to settle.

The crew chief pushed himself away from the main cabin door and hit the deck as the helo stopped and settled at the deck edge. The HAC saw that Nr was at 98 percent and decreasing. He moved the ECL, but the lever hung up on the detent for a moment before it slid to the fly position. The rotors hit the guardrail on the catwalk, and the Sea Knight crashed into the ocean.

Besides the loss of this CH-46, the LHA was damaged when the helicopter's rotors struck the catwalk area. Shrapnel from the crash also hit three other Sea Knights.

Fortunately, the three crewmen were able to get out of their aircraft from beneath the surface. The SAR helo picked them up and returned them to the flight deck in 15 minutes.

The aircraft had dropped below minimum single-engine airspeed in a HOGE environment. The crew simply did not have enough power at this stage of the approach for the aircraft's weight.

Several key lessons came out of this mishap. First, any pilot, regardless of rank or experience, can become task saturated. When practicing in-flight emergencies, or doing a checkflight that requires simulated EPs, it is the HAC's job to ensure that simulated EPs don't constitute a real threat to the flight.

Second, weigh the reward against the risk. Use risk management in training. The benefit of practicing a SIMSE approach with AFCS off to a spot between two aircraft did not outweigh the risk.

Third, although the HAC ordered a hazardous maneuver that resulted in an unrecoverable situation, the H2P erred in that he did not voice his concern strongly enough. Both pilots didn't recognize until too late that they did not have HOGE power available to complete the approach.

This mishap gave a wakeup call to STAN boards in the fleet to ensure that COs are well-informed and in agreement with practice EP scenarios for NATOPS and STAN checks. This squadron did not have adequately standardized procedures for annual NATOPS checks.

A recent 3710 change regarding NATOPS qualification extensions allows the CO to extend qualifications that would expire during the last 90 days of deployment. This change permits these check flights to be made in a safer environment ashore.◄

# My Nugget

by Lt. Scott Syme

Our squadron had just loaded aboard USS *Kitty Hawk* (CV 63) for a five-week COMPTUEX in the SOCAL op area. As a brand-new nugget, I was the junior guy in the squadron. I had walked on board and waited for the fly-ons to arrive.

During my day CQ, my first pass was a little rough, but I expected it, having been away from the environment for a couple of months. I managed to complete my day-currency requirements and started focusing on my night hop.

After a thorough brief, I manned up for the two night traps I needed to complete my CQ. Everything was going as planned. Marshal, commencement, and my first trap were uneventful. All I needed was one more trap, and I could head back for a slider and some of our famous soft ice cream as a reward.

Following the cat shot, I entered the bolter pattern and was hooked in at four miles for my approach. I thought it was going pretty well, but the LSOs saw my aircraft begin to decelerate and settle. They called, "Power!", then "Waveoff!" My signal was tank because my fuel state was almost down to bingo.

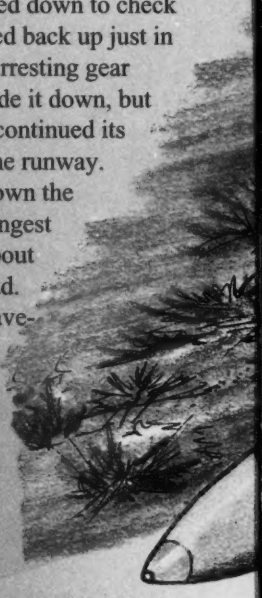
I guess it must have been my night in the barrel for tanking. After several unsuccessful stabs at the basket, my fuel state hit the magic number, and I had to divert. In came the probe, and I began my bingo profile, squawking emergency and talking to the shore-based controllers.

NAS North Island was below minimums, so I set out for NAS Miramar. I had diverted there once before while I was in the FRS. I considered the fact that my landing rollout was going to be longer than normal with carrier-pressurized tires and set up for a visual straight-in approach to 24R. Then the fun began.

I flew the ball to touchdown and started applying the brakes, but nothing happened. At 100 knots, I started aero-braking and began to decelerate, but the brakes still didn't feel right. I checked to ensure that I had selected anti-skid and no associated cautions were present. As the 5-board went by, I was at 50 or 60 knots, and felt that the brakes were more effective, so I thought the problem was solved. Not quite!

That sudden spurt of braking faded after a few applications. I glanced down to check my groundspeed and looked back up just in time to see the long-field arresting gear approaching. My hook made it down, but not in time, and the plane continued its march toward the end of the runway. I thought about shutting down the engines so they wouldn't ingest foreign objects and also about ejecting if the ride went bad.

The transition from pavement to soil was smooth. It got very dark, very fast without the taxi light, and I felt like I was going to roll forever.



# Overrun

Fortunately, that wasn't the case, and I finally stopped about 150 feet past the end of the runway.

Several things contributed to this cheap lesson on how quickly routine events can turn sour. I didn't notice any runway markers before the 7-board, which delayed my realization that I was not decelerating. In hindsight, I also didn't apply the emergency brakes until it was too late. We always train for loss of brakes, but since I had pressure in the pedals, I thought the brakes were still effective, so I didn't immediately do emergency procedures for brake loss.

Another option was to take it around again. I still had 2,000 pounds of fuel, and I could have selected afterburner, taken off, and possibly troubleshot the system as I set up for a short-field arrestment.

Post-flight troubleshooting determined that the brake-control valve assembly had failed.

Lt. Syme flies with VFA-27.

# Fowl

by Cdr. Robert Spence

The VIP relaxed in the back of the CT-39G Sabreliner as it descended toward the airfield. The experienced crew had flown the route into home plate many times, and ATIS revealed no particularly noteworthy information on the third and final leg of the day. The early fall weather was mild with a scattered layer of clouds.

**Fifty-four bird carcasses were recovered from the runway.**

Now that the newly resurfaced left runway was finally open, a short taxi and expeditious delivery of the distinguished passenger to the terminal would get the weekend started more quickly. With the Navy transport on short final, the tower cleared an incoming Air Force jet to land on the left side behind the T-39.

As the Sabreliner entered the landing flare, coasting past the arresting cable and the concrete surface to avoid damage to its relatively fragile landing gear, the copilot heard a dull thud and asked, "What's that?"

The pilot noticed a single starling glancing off his windshield and responded, "A bird..." Then, as the entire flock lifted off the black asphalt surface, he yelled, "It's lots of birds!"

The aircraft touched down, and the copilot called, "Six lights," indicating the engines were prepared to enter reverse. Meanwhile, the black starlings lifted off the runway, hitting the aircraft. As the pilot reversed the engines, the left engine bogged down and flamed out. The pilot alertly brought the right reverser forward and steered the aircraft with ailerons and a stiff, unresponsive nosewheel.

After stopping the aircraft, the copilot switched the failed nosewheel steering to the standby mode and left the runway because the incoming Air Force aircraft was already cleared to land.

The pilots told the tower that they had sustained multiple birdstrikes as they left the runway. However, the Air Force jet landing behind them received no warning, and the birds badly damaged a drop tank.

A slightly shaken pilot and copilot wisely elected to shut down the remaining engine on the taxiway, arranged for transportation for the VIP, and let the maintainers tow the aircraft to the line. Both engines had to be replaced because they had ingested birds. Fifty-four bird carcasses were recovered from the runway. Other damage included a cracked radome and dents on the leading edges of the wings. The nosewheel steering failed because birds had jammed the steering mechanism.

Several events led to this incident, either directly affecting the situation or significantly contributing to the outcome. First, the officer in charge of groundskeeping for the base decided over the objections of the air operations officer to cut the grass near the runways to a height of 2-3 inches before a visit by a foreign dignitary. Cutting the grass that low contradicted the written guidelines provided by the local Bird-Aircraft Strike Hazard (BASH) reduction plan and attracted a large number of birds for feeding.

Second, fall and spring are the primary times of year for the migration of starlings. They find safety in numbers and habitually travel in flocks containing as many as 4 million. The newly resurfaced asphalt section of runway retained heat from the afternoon sun, attracting the birds while

# Deck!

nd Lt. Mark Gibbons

keeping them camouflaged from the approaching pilots.

Third on the pilots' list of misfortunes was an apparent lapse by the tower controllers. ATIS gave no information about birds in the area, and the controllers didn't give any warning, in spite of receiving estimates of 400-500 birds in the area.

The base followed up this fowl episode with an investigation, which revealed the BASH plan was used only as a guideline, not as an enforceable procedure. Since this incident, the BASH plan has been modified, including issuing ATIS warnings and prohibiting takeoffs during "severe" bird activity.

The day after the multiple birdstrikes, base officials expended their entire allotment of shotgun shells for the fiscal quarter while standing in the middle of a flock that was feeding in the short grass. They were careful, of course, not to actually shoot any birds. This attempt at scaring the birds proved futile, because these birds apparently do not take flight unless the other birds around them do. Other noisy attempts to scare them off didn't work because the birds became accustomed to the sounds.

An expert on bird behavior finally investigated the problem. He recommended a bioacoustical recording of a European starling in distress. This recording captures one of their compadres in great pain and has proven convincing enough to scare these frequent midair victims away from the runway.

Cdr. Spencer and Lt. Gibbons were the plane commander and pilot at the controls, respectively, of this Sabreliner. Cdr. Spencer is the safety officer for FLTLOGSUPWING's Det Washington, and Lt. Gibbons is assigned to VR-48.

# "I'm Not Your Radio

As we taxied back to our line, I replayed in my mind the sequence of events that had just transpired, and I was disgusted. How in the world could two experienced aviators get themselves into such a situation? Together, my instructor pilot (IP) and I had more than 3,000 hours in tactical jets, not to mention another 1,000 hours as test pilots.

This sortie had been a test pilot's dream. I was finishing up the high angle-of-attack and spin phase at the U.S. Test Pilot School at Edwards AFB. This flight was the "phase graduation" hop — a demonstration and investigation of the F-16 deep-stall phenomenon, both upright and inverted. The substantial preparation included many hours of academics, flight profile work-up, risk assessment, and hazard analysis.

My instructor was an experienced F-16 test pilot who had recently reported to the school. I was a fleet-experienced, 1,500-hour FA-18 pilot with 20 hours in the F-16.

After start-up, I taxied us out, launched, proceeded overhead to the spin area and did the mission. As soon as I had finished manually pitch-rocking the Viper out of the last inverted deep stall, the IP told me we had a "simulated" engine flameout (SFO). I configured the aircraft for the flameout condition and headed for the lakebed for an emergency landing. Once established in the glide, I reassessed my energy state and confirmed that we could make it to the duty runway. I headed for high key, but the radios were clobbered as I tried to check out with range control and check in with tower. The pattern was clear so I kept coming.

The instructor cluttered the ICS with advice, technique explanations, and assessments of the SFO. I finally checked in with tower after passing low key on my way to final and at this point, I was starting to feel behind the aircraft. During a relatively lengthy and distracting dialogue with tower as to who I was and where I came from, I was deep and slow. I overshot the runway, holding the gear for the last minute. Having difficulty seeing the runway from the back seat, I overshot the comeback and rolled out left of centerline. I was not too impressed with my SFO so far.

There I was — on final on the back side of an SFO during my first back-seat landing in the F-16. My last F-16 flight had been about four months earlier, and this baby was tough to land for the inexperienced, even from the front seat. I was still slow and deep. The gear was in transition, I was working through the landing checks, and I was trying to get clearance from tower to land. Oh, by the way, I was approaching the flare point. I was sure that although my technique was not pretty, I had accomplished the critical tasks. The gear was down with checklist completed, I had clearance to land and was correcting toward centerline.

The IP then injected, "We're still lined up a little left, but we're OK, a little on the slow side.We want to have some energy to flare."

"Roger that," I replied. "OK, yeah, runway made, 150 knots, all right, here comes the flare."

I started the flare a little high and pulled the remaining power off a little too early, but at least I was on centerline now. As the airspeed bled off and we started to float, I was fighting to coax the Viper down onto the deck.

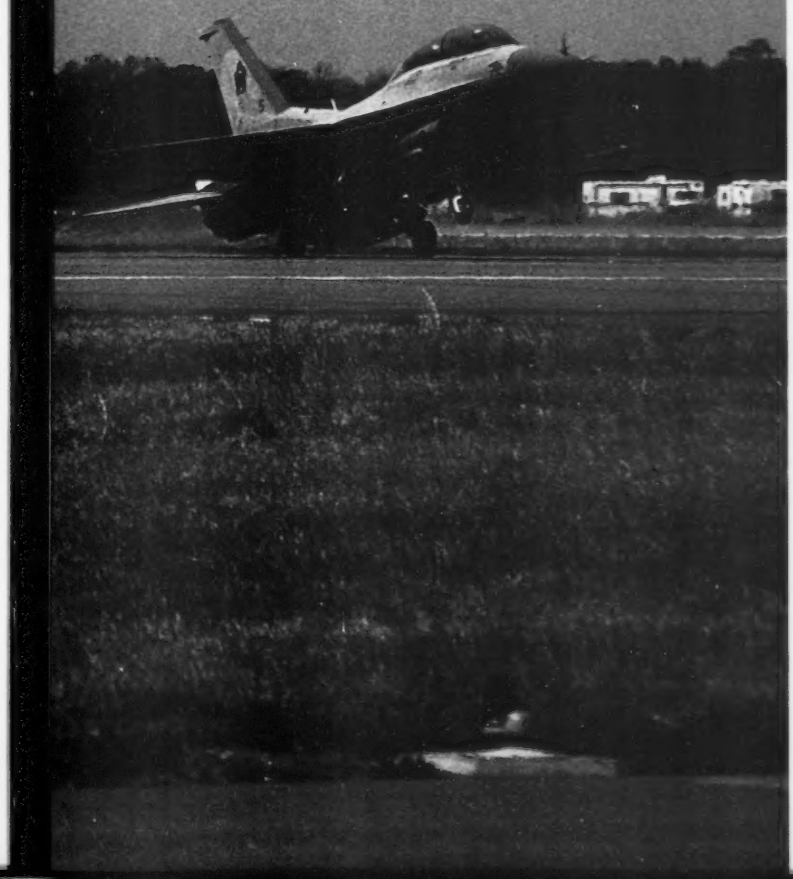
At that point, I felt the throttle move quickly to military. As the aircraft climbed away from the runway, the IP said, "Well, no need to try and salvage this one, no big deal, we don't need to press it."

In disgust, I slammed both my arms against the canopy, then rested them on the

# man!"

*by LCdr. Charles A. Sternberg*

**In disgust, I slammed both my arms against the canopy, then rested them on the canopy rails as I chastised myself for having flown an approach so poorly that the instructor had to take it from me.**



Peter Mersky

canopy rails as I chastised myself for having flown an approach so poorly that the instructor had to take it from me.

Some test pilot I turned out to be!

The IP asked me to call tower and get clearance for the closed pattern. As I did, I thought to myself, "Why are you asking me to call? You're flying the jet. I'm not your radioman!"

As the jet continued a gradual climb, I wondered why we weren't leveling off for the low transition, which typically preceded the pitch-up to the closed pattern. Tower cleared us for an extended closed pattern, which meant a little more straight-and-level driving time before the left hand pitch-up.

As the aircraft climbed through 1,000 feet AGL on runway heading, I noticed the wheels were still down. The IP interrupted the silence with, "Normally we put the wheels up when we pull for the closed, but I understand that whole Navy thing."

"Yeah, I know, heh, heh," I acknowledged, but I was puzzled. I thought, "No kidding, Sherlock, I've been flying these closed patterns for 11 months. I know that. So why haven't you put the wheels up?"

We were now approaching 290 knots, and the gear speed was 300. As I kept wondering, his next call was, "Didn't we get cleared for the extended closed?"

"Yes," I answered, and again thought, "So, why haven't you turned? We should have turned 15 seconds ago."

At this point, the aircraft was approximately 3 degrees nose up and still gradually climbing, wings level, on runway heading approximately 1.5 miles upwind.

He then called over the ICS, "Well, we really don't want to overspeed the gear."

I replied, "Nope, don't want to do that," and again I thought, "So, why don't you slow down and turn?"

**For 1 minute and 15 seconds, General Dynamics, luck and a bunch of ones and zeroes flew our F-16 from an aborted touch-and-go at 10 feet AGL and 150 knots to 2,500 feet AGL, 290 knots, and 3 miles upwind.**

A few seconds later, the aircraft started a slow roll to the right to about 15 degrees right wing down, the nose dropped to approximately 5 degrees nose down, and we started descending.

"What the heck is this guy doing?" I thought.

Instinctively, I peered around the front ejection seat to satisfy my curiosity, and I had my answer as my heart skipped a beat. There, in front of me was the IP, comfortably resting with his arms on the canopy rails! I immediately grabbed the sidestick, took control of the aircraft, leveled the wings, raised the gear and told tower that I was turning crosswind for a full stop. All was quiet in the cockpit, my adrenaline was pumping, and I realized that the IP had no idea that for the last minute and 15 seconds, no one had been flying the airplane!

I decided that the best course of action was to deal with the task at hand, which was landing, and save the discussion for the debrief. I landed — a nice one this time from the back seat — rolled out, taxied back and shut down.

In the debrief, I broke the news about the "guest" pilot that we had for that 1+15, and the IP stared at me in disbelief.

"You what? You've got to be kidding me!" A very long discussion followed.

We made many mistakes. I was disappointed in my own flight discipline, especially since I had been an A-4 instructor pilot and had dealt with "positive control of aircraft" issues in great detail. Obviously, I had gotten sloppy, and we had broken some cardinal rules.

What had happened to always maintaining positive control of the aircraft? "You've got it," "I've got it," "Roger, you've got it." We had successfully changed control out in the area during the deep stalls several times without incident.

Why hadn't we done it properly this last time? Breakdown in communication, lack of assertiveness and task saturation of the pilot in the rear cockpit. The F-16 provides no direct feedback between front- and rear-sidestick controllers and rudder pedals. The only control that moves in the front as well as the back is the throttle. Therefore, control of the aircraft cannot be determined or verified by watching stick or rudder-pedal motion.

Also, there are no mirrors in the front cockpit that let the IP see what is going on in the rear cockpit.

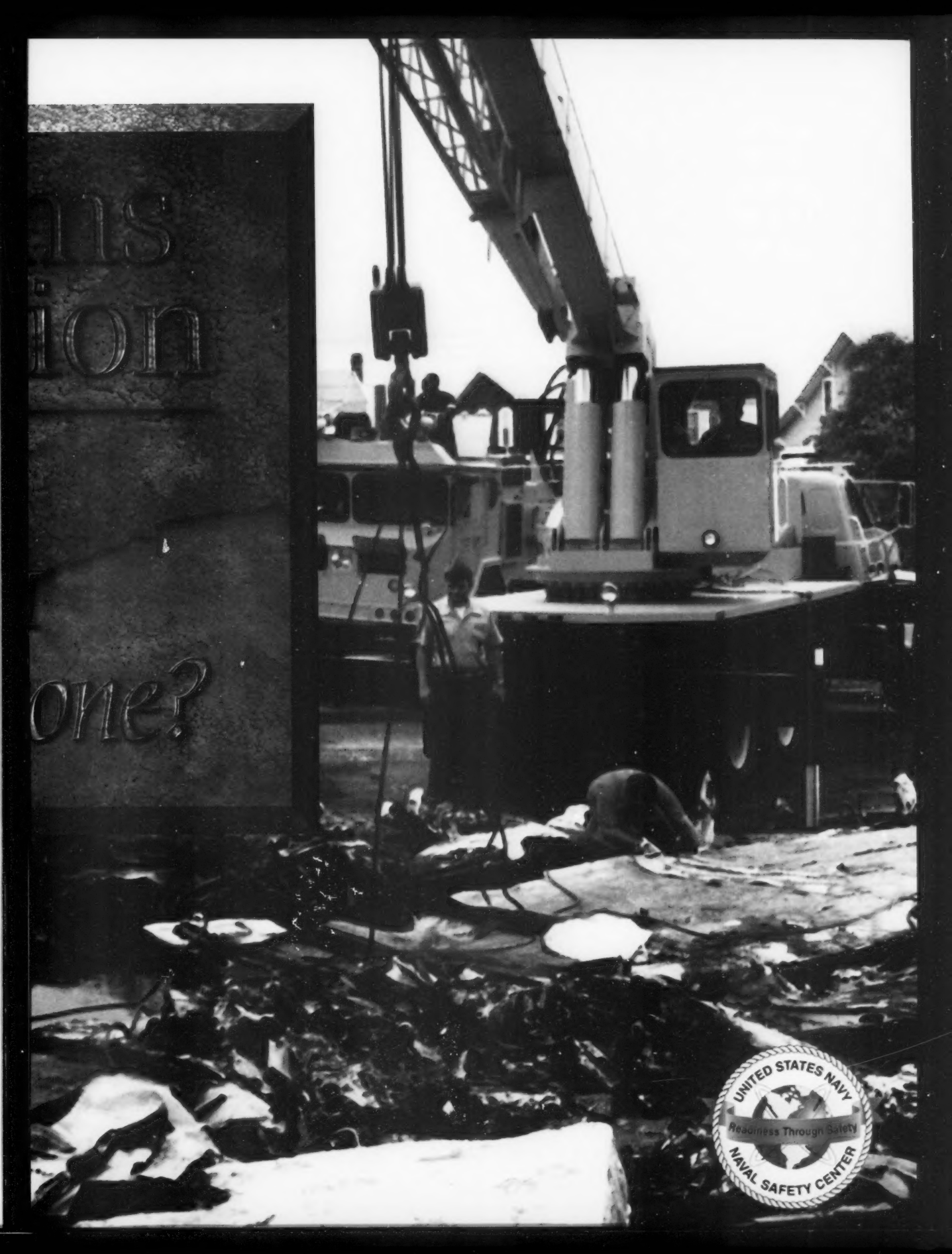
Whatever happened to the adage that the person flying the airplane talks on the radios? Why had that not alerted me to the problem? What about moving control surfaces, throttles or wheels when not in control of the aircraft? And most significantly, why were we thinking to ourselves and not talking to each other? These omissions fall under the ACT category of assertiveness. I was reluctant to put him on the spot in deference to his experience as a test pilot and my position as a student. He, in turn, didn't want to treat me as a knucklehead student or challenge my actions in deference to my experience. Instead, he tried to give polite hints to influence my supposed control of the aircraft.

My first thought was that it wasn't my fault. He moved the throttle and set this chain of events into motion, but we hadn't talked to each other about aircraft control. I had simply relinquished control because I thought he had taken the aircraft.

Lack of assertiveness and being too polite will kill you. Have the guts to iron out the confusion when it arises instead of trying to take the easy way out by trying to avoid a potentially embarrassing situation. Barney has no business being in the airplane!

For 1 minute and 15 seconds, General Dynamics, luck and a bunch of ones and zeroes flew our F-16 from an aborted touch-and-go at 10 feet AGL and 150 knots to 2,500 feet AGL, 290 knots, and 3 miles upwind. ◄

LCdr. Sternberg flies with VFA-27.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# Perfect Practice Makes Perfect

by Bill Gregory

*The copilot was also weak in instrument time: 1.5 hours actual, 3.3 hours simulated, and seven non-precision approaches in the same time frame as the pilot. His last actual instrument approach was six months before the mishap. They say practice makes perfect. This story shows what a lack of practice does.*

The mishap pilot (MP) had emphasized to squadron pilots the need to practice section-instrument approaches. Before takeoff, he briefed a section precision or non-precision approach upon their return to base, and he would be lead. If the flight lost sight of each other during IMC, the wing aircraft would execute a 170 degree climbing turn away from the lead and call when passing 90 degrees of heading change. He said their first choice for a section approach to the field would be a GCA; their second choice would be a tacan approach.

The weather forecast for their return was for IFR conditions. After the brief, the other three pilots questioned who had flown an actual section approach; none of the three had ever done one. All the pilots packed an overnight bag anticipating an RON.

Returning after their mission was complete, the flight made several unsuccessful attempts to get below a solid overcast 600 to 900 feet thick along the coast. Home field was reporting 1,200 feet broken, 1,500 feet overcast, 7 miles visibility. The GCA was unavailable; GCA personnel had gone home.

The flight tracked into the home-field tacan at 4,500 feet MSL and requested a tacan approach. Approach control checked with the tower and learned the home-field tacan station was reported down, but that an alternate tacan approach was available. When the home-field tacan went down, maintenance personnel had checked and found nothing wrong, but failed to pass that information along to the tower. The home-field tacan was left on.

The MP passed the lead 30 miles from home after his tacan needle locked 40 degrees off. The new lead questioned the home-field tacan not working because the flight had used it to track into the initial approach fix (IAF) with good azimuth and DME information. He finally accepted the alternate tacan approach and requested radar vectors to the IAF. While tracking outbound, the wingman asked lead to turn his formation lights to bright and the rotating beacon off. Eight minutes later, he asked that lead turn his rotating beacon back on. The wingman may have suffered vertigo caused by lead's rotating beacon in the clouds.

The flight began a 500 feet per minute descent at 17 miles DME. They entered the overcast at 1,800 feet. The lead copilot saw the other Super Cobra drift back from a one-rotor-diameter separation to three diameters, then quickly come

back to one-rotor separation and slip into a one-rotor-diameter parade position.

The lead copilot looked back into the cockpit and advised his pilot they were at the final approach fix (FAF) at 10 miles. After the pilot called the FAF, the copilot looked back to the wingman but he was no longer there. Lead called the wingman and asked for his position. The wingman responded, "We've broken it off and are climbing." His response seemed curt, as though he was busy flying and didn't want to be bothered answering radio inquiries. He was probably confused over what tacan channel he was receiving, and where he was relative to the field.

Lead broke out of the overcast at 1,200 feet and asked if tower had contact with the wingman. As lead's transmission ended, tower observed a fireball about five miles from the field on the final approach heading.

The people in the tower saw the explosion almost two minutes after the lead aircrew last sighted the wingman. The investigator believes he was attempting a 360-degree turn back to the final approach course, but over-banked and completed almost 620 degrees of a tight turn in the two-minute interval. The final 90 to 120 degrees of turn was completed in an unusual attitude.

The aircraft crashed almost inverted near the top of a small hill. At impact, the aircraft was in a 124 degree right roll with 60 degrees nose down. The VSI showed a rate of descent of 2,300 fpm. An autopsy indicated both pilots suffered injuries indicative of being at the controls at impact.

The BDHIs from both cockpits showed the No. 2 needle (tacan) pointing toward the field. The pilot's BDHI showed a DME of 4.6 nm — the exact distance from the crash site to the home-field tacan.

Tracking inbound to the IAF, both aircraft were receiving the home-field tacan. After being told to make a approach using an alternate tacan, the lead switched tacan stations but the mishap pilot did not. The two crews missed or misread several calls from approach — and even switched to the tower frequency without being cleared — evidence that they were tired. The mishap pilot probably had vertigo, got disoriented, and flew into the ground.

*Mr. Gregory is a mishap investigator for the Naval Safety Center.*

## Milestones

| Command | Date | Hours | Years |
|---|---|---|---|
| VAW-126 | 07/31/96 | 8,879 | 4 |
| VF-103 | 09/13/96 | 13,200 | 3 |
| VP-26 | 08/02/96 | 251,000 | 34 |
| VAQ-130 | 07/25/96 | 27,000 | 15 |
| VRC-40 | 08/23/96 | 57,620 | 13 |
| HC-5 | 08/24/96 | 16,638 | 3 |

## Class A Mishaps

The Navy and Marine Corps had 36 Class A flight, flight related and ground mishaps before 31 August in FY96. The following mishaps have occurred since 17 July:

| Aircraft | Date | Command | Fatalities |
|---|---|---|---|
| F-14A | 08/07/96 | VF-32 | 0 |

A blueshirt was run over by a Tomcat during respot on board a CVN.

| | | | |
|---|---|---|---|
| FA-18C | 08/09/96 | VFA-105 | 1 |

Hornet did not return to the CVN during a night Case III recovery.

| | | | |
|---|---|---|---|
| CH-46D | 08/14/96 | HC-6 | 0 |

Sea Knight ditched after an engine failed during takeoff from ship.

| | | | |
|---|---|---|---|
| CH-46E | 08/19/96 | HMM-163 | 1 |

Sea Knight had an in-flight fire and made an emergency landing in an open area.

| | | | |
|---|---|---|---|
| FA-18A | 08/22/96 | VMFA-321 | 1 |

Hornet crashed into the ocean during an ACM engagement on an air-to-air mission.

| | | | |
|---|---|---|---|
| EA-6B | 08/23/96 | VMAQ-1 | 4 |

Prowler crashed into the ground during low-level maneuvering.

## Class A Flight Mishap Rate

| | FY96 to Date | | FY95 to Date | |
|---|---|---|---|---|
| | No. | Rate | No. | Rate |
| Navy/Marine | 35 | 2.43 | 30 | 2.13 |
| All Navy | 21 | 1.95 | 20 | 1.91 |
| All Marine | 14 | 3.88 | 10 | 2.75 |
| NAVAIRLANT | 6 | 2.00 | 4 | 1.40 |
| NAVAIRPAC | 9 | 2.83 | 12 | 3.81 |
| MARFORLANT | 7 | 5.66 | 3 | 2.43 |
| MARFORPAC | 5 | 2.94 | 6 | 3.40 |
| NATRACOM | 2 | 0.69 | 3 | 1.03 |
| NAVAIRRES | 3 | 2.29 | 1 | 0.86 |
| 4th MAW | 2 | 5.24 | 1 | 2.83 |
| NAVAIRSYSCOM | 1 | 3.28 | 0 | 0.00 |
| Non-MARFOR | 0 | 0.00 | 0 | 0.00 |
| OPNAV | 0 | 0.00 | 0 | 0.00 |

*Tear out this insert! Post this newsletter until it's old news, then flip it over as a poster.*

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Contamina
A Little Dir
Never Hurt Any

# I Learned the Hard Way

As I stood in the corridor waiting to go in and see the man, I replayed that night's events over and over. How could everything have gone so wrong? I had followed all my normal operating procedures. There was nothing special about that night, nothing different. I have talked with many aircrew, and they admit that they would have done the same thing. I was good, I knew what I was doing, and I was confident. Sounds like a hairy night of flying, only in my case I was nowhere near an aircraft.

The man I was waiting to see was the local judge, and my night event was a routine drive home from the local pub. Every time I was the driver, I always carefully monitored my alcohol intake. I never drove drunk. Sure, I drove several times with what I thought was a small buzz, but never drunk. Other people drove when they shouldn't, but not me. Never. What effect could a couple of beers have, anyway? It wasn't as if I couldn't walk.

That particular night, I went out with every intention of having only one or two drinks. I started playing pool for drinks, and I was winning. I ended up having nine drinks in four hours. I was out with a friend and didn't want to make the embarrassing confession that I might need a cab. I was sure I could drive home.

A policeman pulled me over and arrested me for drunk driving, and my life instantly changed. My breathalizer indicated I had a blood-alcohol level of .14, well over the legal limit.

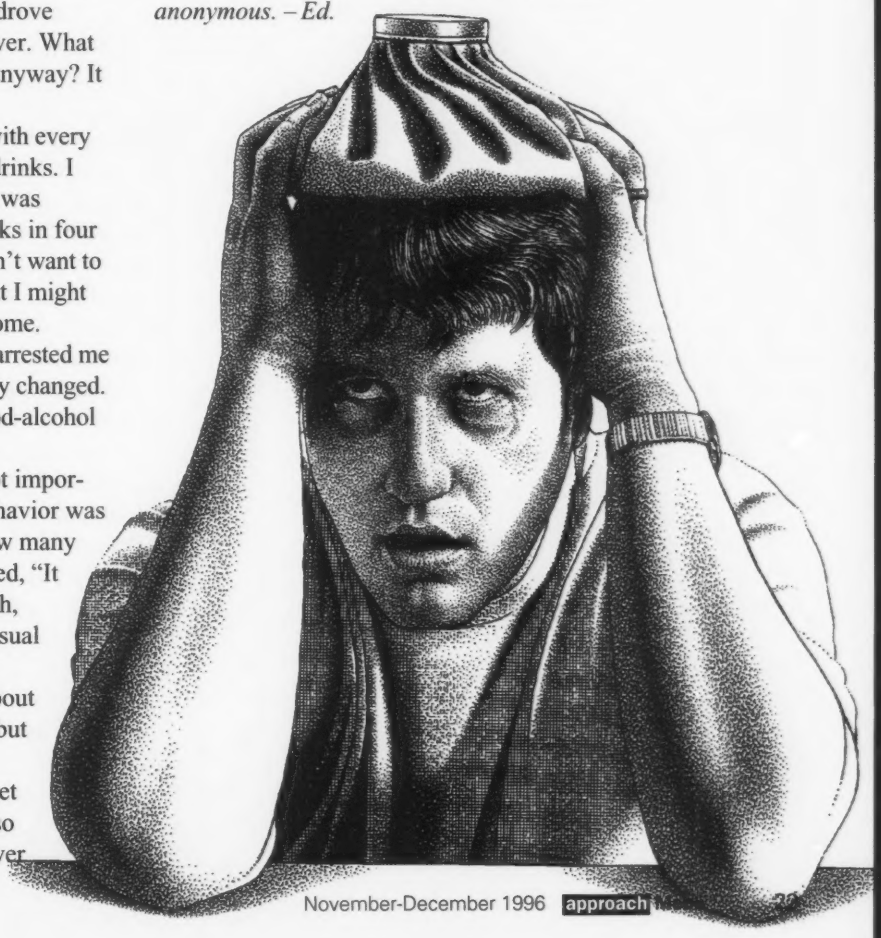
The particulars of my case are not important. What is important is that my behavior was fairly typical in naval aviation. I know many pilots and NFOs who have commented, "It could have happened to me," or "Yeah, I've done that." There is nothing unusual about a few beers at the club before heading home. We hear constantly about the dangers of drinking and driving, but few of us heed the warnings.

We laugh at the poor fools who get caught after a night on the town. I also used to laugh. I believed it would never happen to me. We spend a lot of time studying and practicing aviation safety. Perhaps we should use the same thoroughness when evaluating our actions on the ground.

Have a game plan and stick to it. If you want to drive, don't drink at all. Even one drink has an effect. If you plan on drinking, plan on a taxi. I know a little bit of headwork and situational awareness would have gone a long way for me on that fateful night. A $10 cab ride could have saved my career.

I am still lucky, though: I am alive to tell my story. I was fortunate that I didn't kill myself or others. I learned my lesson the hard way. I wonder how many careers and lives will be lost before we all realize it can happen to anyone at any time.

*The author of this story wishes to remain anonymous. – Ed.*



# Sometimes, Life Is a Ba

Everyone seems to agree that three strikes is a fair number of chances for a batter to hit a pitch in baseball. Suppose the rules were changed, so that the umpire shot everybody who struck out. Aside from demanding even bigger paychecks, you might also argue for a few more chances at the plate. How many more chances would be fair?

We were wrapping up an MEF deployment, and everybody was looking forward to out-chop and the journey home. I was getting ready to man up when the HAC for our event approached.

"We're gonna try to do a parts transfer before the mission. One of the ships needs a piece of equipment that's on the carrier. It'll be small enough to run down the hoist. After we drop it off, we'll head out."

I glanced at the setting sun. "We're going to have to hustle." He agreed, and we took off soon afterward.

We arrived at the carrier and were cleared to charlie almost immediately. After about five minutes, the part was loaded, and we departed as the sun sank below the horizon. I was beginning to feel uneasy about doing the hoist transfer as the light slowly faded around us.

I said as much to the HAC. He thought for a moment.

"Well, we've still got some pinkie time left. We'll take a look at it, and if it looks bad, we'll wave it off and deliver the part tomorrow."

Zip! Strike one.

I thought about that. The part we were delivering wasn't needed immediately, so operational necessity wasn't an issue. Why wait until it looked bad?

Zing! Strike two.

I recalled the note from NWP 42: Routine personnel or cargo hoisting operations shall not be conducted at night.

Zot! Strike three. Too bad, but wait a minute, it looks like they're gonna let him bat again.

Galloping on the heels of that thought came another, this one from NATOPS and preceded by a thick-bordered warning box: external cargo operations shall not be conducted on board ship at night except for reasons of operational necessity.

Zap! Strike four.

But we pressed on. The ship had been less than 10 miles from the carrier, and there was still some sunlight available. It would have been a lot easier if we could have landed, but although it had a flight deck, the ship receiving the transfer was not certified for the SH-60B. And it was getting darker still.

Zoom! Strike five! This was starting to get ugly.

I made no effort to conceal my aversion this time.

"I really don't think this is a good idea." But I was cut out by the ship contacting us on the radio with the approach numbers. Instinctively, I clammed up and began copying the information. The HAC must have heard what I said, though, and he spoke as soon as there was a break on the radios.

"We'll shoot the approach, and if it doesn't look good, we'll wave off."

By the time we were established in the pattern, the horizon had been swallowed by the night. Because the ship's flight deck was configured for the H-2, it required us to shoot an unfamiliar approach profile.

Zorch! Strike six!

"Forty-seven, tower, be advised the SCSI is down."

Zowie! Strike seven!

"Tower, 47, roger. Is father working?"

"Negative, 47, TACAN is inop."

What a shellacking!

"Forty-seven, tower, Charlie Oscar says we can wait until tomorrow for the part if you'd rather not attempt the transfer tonight."

Finally, we're off the hook, and then the HAC responded,"Nah, we'll give it a shot."

We began setting up for the approach. I was astonished. The words "break the chain" came to mind when something suddenly occurred to me: Maybe I was wrong. The HAC seemed confident; the crewman, a seasoned operator with extensive underway experience, hadn't objected. Maybe I was being overcautious or had misinterpreted published guidelines. Either way, we were now established on the approach, closing on the flight deck.

# seball Game

by Lt. Rich Catherina

We crossed the deck edge with the SENSO already in the door. He had placed the part in his helmet bag so he could attach it to the hoist and lower it to the deck. At the same time, the HAC called me on the ICS, telling me to call his position over the flight deck.

**"Well, we've still got some pinkie time left. We'll take a look at it, and if it looks bad, we'll wave it off..."**

I immediately complied, looking for cues from which I could evaluate the motion of the aircraft relative to the ship, eager to provide sufficient information for the HAC to keep the aircraft stable.

As the part went down the hoist, the aircraft slowly began to oscillate in three axes. Spatial cues already unfamiliar to us now began to vanish and reappear through the windows, accelerating the deterioration of our hover. The aircraft's pendulous motion offered an impressive opportunity for disorientation, and I was thinking how it couldn't get much worse when the emergency locator-transmitter activated, blanking out all comms with its ear-splitting warble.

I groped for the UHF switch to secure the Guard monitors on the radios. By this time, the aircraft oscillations were substantial. Although we no longer heard the ELT in the aircraft, it was still transmitting. The only way to secure it and regain clear comms with the tower would have been for me to take control of the aircraft while the HAC turned around to shut off the transmitter. And I was in the seat away from the superstructure.

There wasn't enough visibility from my position to maintain a safe hover over the deck. As soon as the SENSO reported the hoist stowed and the cabin door secured, the words shot out of my mouth, "Power! Let's get out of here."

The HAC pulled in collective and nosed the aircraft over while I called safe single-engine speed and the stabilator programming. After we leveled off from our climbout, we swapped controls and the HAC secured the ELT. The ship thanked us for the effort, and we proceeded with our tasking, landing uneventfully a few hours later.

A colorful debrief followed after shutdown. Although only an H2P at the time, my responsibility for the errors leading to this non-mishap was sizeable. I was the first to identify a degenerating and subsequently dangerous situation, yet I allowed the mission to proceed. The HAC's insistence in continuing the mission made me question my understanding of directives. Furthermore, once over the flight deck, I became so focused on cuing the HAC that I unconsciously eliminated waving off as an option. In other words, despite a multitude of opportunities to break the chain, I chose to be accommodating rather than decisive.

The HAC had ultimate responsibility for safety of flight, and should have realized that under existing conditions, the mission required a breach of SOPs. His response to my reluctance to proceed with the parts transfer was to placate me, which had the unintended effect of removing me from the decision loop. In the end, we all agreed that while the transfer mission was worth considering, it should have been aborted precisely at sundown.

Baseball probably will never see extra strikes at the plate. Don't bet your life on seeing them in the air.◀

Lt. Catherina flew with HSL-45. He is now assigned to BUPERS.

# Hunting for

by LCdr. Chip Laingen

Those of us who have been OODs on LAMPS-capable ships may have heard pilots say, "It's too close for a mo-board, just eyeball it."

When it comes to winds for helo recovery, there may be some truth to this comment. While the maneuvering board will give an accurate solution for winds within the envelope, often a walk to the bridge wing will reveal the best course to steer. But what is the "best," and why should we try to attain it?

Helo operations are among the most potentially dangerous tasks performed at sea. Everyone involved should provide the best conditions possible for every flight. For the OOD, wind is one of those conditions that he can and should affect.

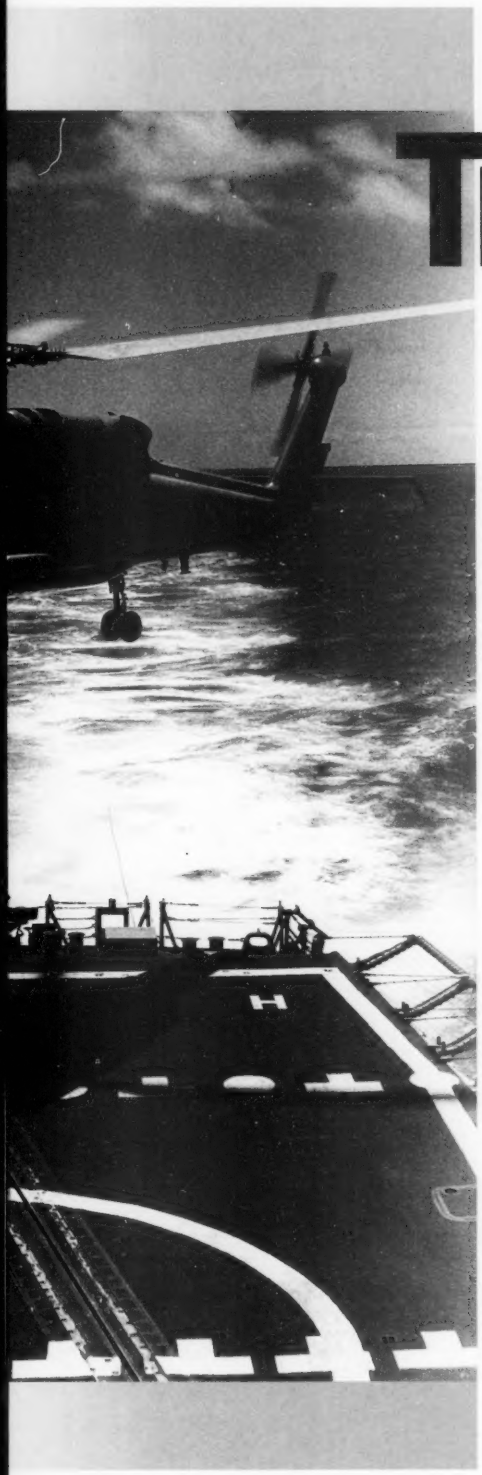
Best wind conditions for launch and recovery are important for several reasons. Forty percent of all helicopter Class A mishaps from FY90 to FY95 occurred during takeoff and recovery.

Taking off and landing on board a small-platform ship requires 3 to 10 percent more power to hover (thus, more tail-rotor thrust) than landing ashore. This difference comes from the turbulent air near the ship, loss of ground effect for those portions of the rotor disk hanging over the water, and interfering effects of the superstructure.

Certain relative wind conditions increase a pilot's workload, especially at night, when flying is the most difficult.

A helicopter can give little or no warning of problems because of a mechanical or pilot-induced fault, especially over the deck, where power requirements are higher and pilot workload is at its peak. The published wind envelopes are based on the relative winds — not the true winds — and foster an illusion of safety for many marginal flight conditions. When a problem comes up, it may be too late to generate optimum winds if they are not already established.

What is considered optimum for helos on board air-capable ships? In a nutshell, true winds forward of the beam, preferably just to port, are the key (for tractor-type, tail-rotor helos like the SH-60B). Why? The ship's relative wind will not become relative until the helo is over the flight deck, or the helo matches the ship's heading and speed.



# True Winds

A helicopter gets its lift in the same way a fixed-wing aircraft does: by wind moving across its lifting surfaces. A true headwind through the rotor system decreases power required to maintain lift and frees up excess power for use by the tail rotor at a time — over the deck — when the pilot really needs tail-rotor control.

A true tailwind increases true groundspeed (actual speed over the water) on approach, which may result in a last-minute flare to arrest closure rates toward the ship. You may lose sight of the ship (especially in an SH-60B with its limited forward visibility) as the nose pitches up, a very disorienting maneuver at night. Also, if the aircraft was required to ditch on final, impact ground speed would most likely be higher with a true tailwind.

Most tail-rotor helicopters are of the tractor type. That is, the blades are mounted on the right side of the tail pylon and pull the air through from the left side. True winds to port are preferred to provide cleaner airflow, which means the tail rotor requires less power.

Wingtip vortices from the main rotor tend to increase power required by the tail rotor, which usually occurs in right-front quartering winds. The tractor-type tail rotor is affected to a much greater degree by wingtip vortices than the pusher-type tail rotor.

These points are meant to to give the OOD an understanding of what is optimum for launching and recovering his aircraft. Whenever the situation allows it, the OOD is obligated to achieve the optimum — true winds forward and port of the beam — and to understand why. ◄

LCdr. Laingen is OinC of HSL-48's Det 9 in USS *John Rodgers* (DD 983).

*These are all good reasons for the OOD finding the best wind conditions for landing a helo on a small boy. But what should also be addressed is the need for expediency when flight quarters is called and a green deck is expected. Expediency does not mean the smallest turn of the ship to get winds in the envelope. It means preparing for the helo recovery when scheduled and knowing in advance where the best winds are.*

*Good planning in the cockpit, on the bridge, and in CIC should be the norm, not the exception. A good pre-cruise brief with all participants and follow-on training should maximize crew coordination. — LCdr. Michael Buran, NAVSAFECEN H-2 and H-60 analyst.*

# "Where's The lead

*by Bud Baer*

The Hornet section lead, Zeus 6, and his wingman, Zeus 7, were escorting two F-14s on a TARPS mission during a restricted theater-operations exercise. Zeus 6 returned from the mission; Zeus 7 did not.

En route to the first check point, the FA-18s had descended through a scattered layer at 6,000 feet MSL. The pilots saw mountain tops hidden by clouds. The lead Tomcat climbed above the clouds going to their push point, then descended into bad weather. The F-14 division lead climbed back into VMC and decided the weather made it impossible to do the TARPS mission. The Tomcats turned back while the Hornets stayed on station.

Zeus 6 asked an E-2C for tasking, and the Hummer directed them to a reconnaissance route. Lead advised Zeus 7 of the change on a discrete tactical frequency. A nearby mountain range was covered with clouds, so lead told his wingman to go into a radar trail and select 10-mile scale on the moving map display.

Zeus 7 was in trail as they penetrated a snow squall with a 1,000-foot overcast and less than a mile visibility. Zeus 7 lost sight of his lead, but had a radar lock on him.

The controlling E-2C told the FA-18 lead to turn right, then one minute later, to turn left. The lead turned right. The wingman, however, turned left, apparently hearing only the second part of the Hawkeye's transmission. The flight separated. It took several minutes before the wingman realized he was separated from his lead. He then tried to rejoin.

Besides the weather, a number of factors made rejoining difficult, including extensive communications from other aircraft involved in a dynamic exercise and the task of obtaining a radar lock on his lead in the presence of many targets.

Zeus 6 climbed to a higher altitude and asked Zeus 7 if he, too, was climbing. Zeus 7 said yes and continued a gradual climb. Zeus 6's last radio transmission to his wingman was, "Go tactical on the back radio." No response. The lead pilot continued the assigned route but couldn't communicate the game plan to his wingman. Zeus 7's DFIR (deployable flight

incident recorder) later told mishap investigators what happened after the pilot lost contact with Zeus 6.

The wingman was maneuvering in and around the cloud tops, probably looking for a hole large enough to descend through. He climbed from 8,700 feet MSL to 9,000 feet, then descended to 8,600 feet. He climbed to 9,200 feet, where the TACTS (tactical aircrew combat training system) lost track of him. TACTS readings showed the following parameters just before Zeus 7 struck a mountain ridge, killing the pilot:

- IAS 392-410 knots
- TAS 429-449 knots
- Mach .71-.68
- AOA 5-12 degrees
- G's 0.6-1.9

During the last 30 minutes, DFIR showed all engine, flight-control and fuel-control systems operating normally. In the final minute, the Hornet flew a generally straight-and-level flight path at 9,000 feet MSL, decelerating from 480 KIAS to 388 KIAS.

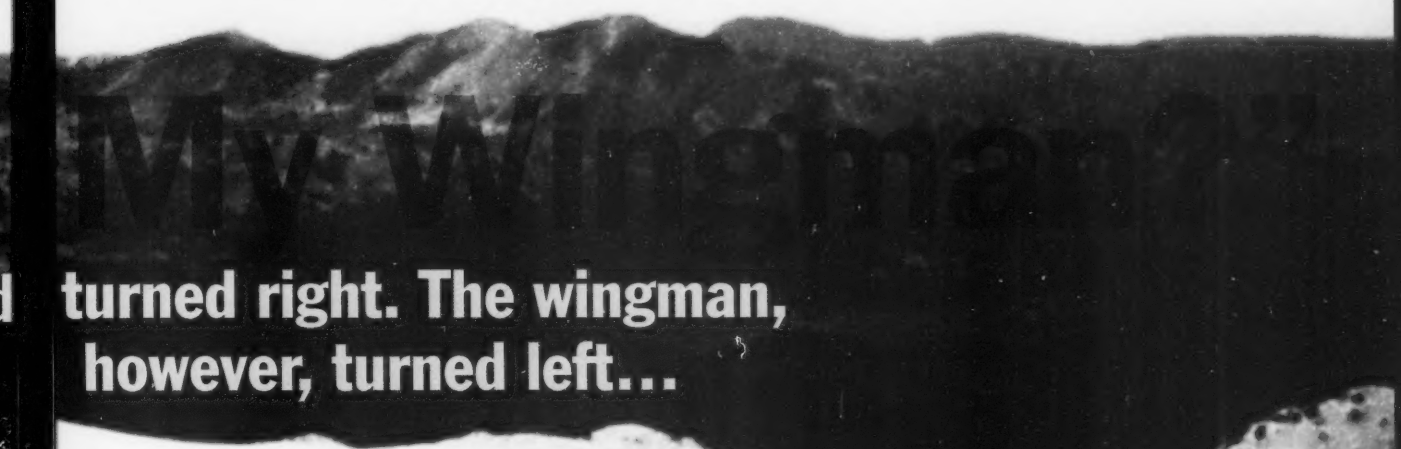
When the Zeus 6 pilot returned to his base, he asked, "Where's my wingman?" He didn't know Zeus 7 had crashed. The flash report said, "The aircraft lost sight and communications with flight lead at low altitude in a snowstorm."

Five Navy SAR helicopters searched the area, where clouds and snow showers hid mountain peaks. They heard intermittent transmissions from the Hornet's emergency-locator transmitter. They found the wreckage on the mountain ridge.

Aircrew error was a major factor in this mishap. Zeus 7 had maintained a generally stable IMC flight path in the last two minutes into gradually rising terrain until he hit close to the top of the highest mountain in the area.

Endorsing authorities recommended that when a flight is in an area of mountainous terrain or significantly varying elevation in below VMC-weather conditions or at night, flight leads should brief inadvertent IMC, lost-sight procedures, and minimum emergency altitudes for the operating area.

There was too much pressing. The Tomcats went home because they didn't want to press on in below-minimum weather. The Hornets should have followed suit or at least followed VFR cloud-clearance rules.◄



**turned right. The wingman, however, turned left...**

The Hornet's tailhook sticks out of the snow like a grave marker (far left). The FA-18C hit the mountain ridge at about 400 knots.

Photos by LtCol. Joe Rogish, USMC

# Bravo Zulu

Capt. Murtha and Lt. McClanahan.

## Instructor Training Unit CTW-4

Capt. Michael P. Murtha
Lt. Jeffery A. McClanahan

Capt. Murtha (PIC) and Lt. McClanahan were on an instructor requalification flight. At 7,500 feet, they saw the chip light come on in their T-34C. Seated in the front cockpit, Capt. Murtha took control, turned toward the nearest airfield and declared an emergency.

Ten seconds later, they were descending through 6,400 feet, still five miles from NALF Waldron. A decreasing N1 did not respond to PCL movements, and metal-on-metal fumes filled the cockpit. The crew secured the engine.

With Lt. McClanahan providing NATOPS information, Capt. Murtha established a 100-knot glide, making S-turns to intercept the high-key position of the emergency-landing pattern. Once he was assured of his approach, he lowered the landing gear and made a dead-stick landing.

Inspection revealed that the reduction gearbox had failed.

Lt. Hernandez, AW1 Symes, AWSC McKelvey and Lt. Smith.

## Naval Air Reserve ASW Training Center NAS Willow Grove

Lt. Mark Smith
Lt. Tracy Hernandez
AWSC William McKelvey
AW1 Edward Symes
AW2 Jason Donner

Shortly after taking off on a training flight, the turbine for the P-3's No. 4 engine failed. The Orion began vibrating and yawed violently to the right. Instruments showed decreasing rpm, decreasing TIT and loss of shaft horsepower.

Once the pilots, Lt. Smith and Lt. Hernandez, confirmed controllability — at 100 feet AGL — AMSC McKelvey (FE) pulled the emergency shutdown handle and feathered the engine.

Aft observers AW1 Symes and AW2 Donner made an integrity check and reported numerous holes in the No. 4 nacelle and the leading edge of the starboard wing. The crew declared an emergency, returned to Willow Grove and landed.

Postflight analysis revealed that the No. 4 turbine had split in half, sending turbine blades, stators and pieces of casing through the No. 4 and No. 3 nacelles, as well as into the plenum (the hot-air chamber in the leading edge of a P-3's wing that is part of the aircraft de-icing system). Shrapnel also had penetrated the fuselage and littered the runway. Fortunately, the No. 3 engine had not been FODed.

BZs require an endorsement from the nominating squadron's CO *and* the appropriate CAG, wing commander or MAG commander. In the case of helo dets, the CO of the ship will suffice. A 5-by-7-inch photo of the crew by a squadron aircraft should also accompany the BZ nomination. Please include a squadron telephone number so we can call with questions.

Capt. Lockwood, Capt. Hanlon, Cpl. Klotter and Sgt. Grundin.

## HMLA-267

Capt. Robert M. Lockwood
Capt. James B. Hanlon
Sgt. Russel Grundin
Cpl. Jeffrey K. Klotter

The crew of a UH-1N was flying a para-ops mission. The Marines making the jumps were loaded with packs, rifles and their chutes. On the first jump of the day, the second jumper off the right side of the helicopter didn't push away enough to clear the aircraft, and his back pack caught on the skid.

Cpl. Klotter was on the right side and called, "Hung jumper!" while moving to help him.

Capt. Lockwood (PIC) slowed the Huey to a hover and prepared to descend. Cpl. Klotter, attached by his gunner's belt, leaned into the slip stream to try to free the Marine in trouble. Unable to free the back pack from the skid by hand and reluctant to use a knife and risk injuring the jumper, he successfully pried him free with a large screwdriver.

The jumper then descended to the drop zone.

Cdr. Roby, Lt. Bozzelli, Ltjg. Marusich, Lt. Kenefick and Lt. Limberg.

## VAW-112

Cdr. Brian M. Roby
Lt. Lisa M. Bozzelli
Lt. Al P. Limberg
Lt. Chris K. Kenefick
Ltjg. Nicolas A. Marusich

During a battle group exercise, the E-2 crew received a mayday from area control. Lt. Limberg (mission commander), assisted by Lt. Kennefick (ACO) and Ltjg. Marusich (RO), coordinated all airborne assets to find a downed S-3 crew. Cdr. Roby (CAPC) and Lt. Bozzelli (copilot) positioned their E-2 for the SAR effort and contacted the cold but healthy survivors.

Attempts to home in on the survivors' signals by other aircraft failed, so the Hawkeye crew kept trying. Cdr. Roby kept up a dialogue with the survivors while Lt. Bozzelli reversed when their signal grew faint.

The E-2 crew interpolated the area where the men in the water might be. They then moved the SAR aircraft to that area, some 35 miles away from the initial focus point of the SAR effort.

By discussing cloud patterns with the survivors and associating the view of the patterns from their aircraft, the E-2 crew finally flew directly over the Viking crew, who were in their life rafts. The Hawkeye pilots eventually spotted the survivors' green dye marker.

Within minutes, another S-3 became the on-scene commander, and the helicopters quickly retrieved the crew.

ABF3 Desi Jackson
AN Andryl Spikes
AR Kristian Wade
ATC(AW) Lou Suarez
**USS *Independence* (CV 62)**

*by JO2 Jason Chudy*

A Tomcat crew ejected when their aircraft's nosegear slipped into the port catwalk. The aircrew was plucked out of the ocean by two Seahawks from HS-14 flying nearby. While the pilots were being rescued, flight-deck personnel were trying to keep the F-14 from falling off the ship.

ATC(AW) Lou Suarez, flight-deck coordinator for VF-154, secured most of the people from the area, climbed into the catwalk, jumped into the cockpit and shut down the engines. Then the flight-deck crew secured the aircraft to the deck. Tilly, the crash crane, came up to move the aircraft, but it was too heavy.

To defuel, AN Andryl Spikes leaned out of the catwalk 60 feet over the ocean. Holding on to him was AR Kristian Wade. ABF3 Desi Jackson relieved AN Spikes — with AR Wade hanging onto his belt. Once the fuel was removed, Tilly lifted the F-14 back on deck.

RAdm. B.J. Smith, Battle Force Seventh Fleet, presented Chief Suarez, ABF3 Jackson, AN Spikes and AR Wade with Navy and Marine Corps Achievement Medals.

AMHAN Robert J. Smith
**HSL-48 Det 8**

During a turnaround inspection on an SH-60B, AMHAN Smith noticed No. 2 engine's bleed-air tube was slightly loose. A closer look revealed the tube's metal flange had separated, allowing the tube to rub against the firewall. Undetected, this failure can leave the Seahawk without a way to restart an engine.

## BRAVO ZULU

A week later, while inspecting a tail-rotor gearbox-servo during a daily-turnaround, AMHAN Smith noticed the tail rotor's servo-input pushrod appeared to be out of position. Checking for movement, he found that a bearing in the tail-quadrant had separated from the assembly. If the Seahawk had flown, the pilot might have lost control of the tail rotor.

These two finds are not specific inspection items but prove the value of the 18-inch rule.

AD3 Scott Fay
AA Michael Hatfield
AD1 Kelly Gould
**VS-38**

During a high-power turn of an S-3B to test a pylon repair, AD1 Gould observed a high ITT on No. 1 engine. He told AD3 Fay, who approached the engine to adjust the T-5 temperature control. AD3 Fay saw fuel leaking from the engine fairing and pylon and felt heat. Before he could react, the engine-cowling doors blew open, knocking him backwards.

AA Hatfield, the fire guard for the turn-up, charged a 150-pound fire bottle while AD3 Fay signalled an engine fire to the cockpit. AD1 Gould completed the emergency checklist and windmilled the engine for one minute. When he stopped, AD3 Fay again signalled an engine fire. AD1 Gould radioed North Island ground control and kept the engine windmilling until the crash crew arrived.

AMS3 Kevin Crouch
**VAW-117**

AMS3 Crouch was troubleshooting an aileron artificial-feel gripe on an E-2C. The MIMs directs that you safety-wire the adjustment bolt's jam nut after adjusting the artificial feel's spring tension. AMS3 Crouch found that a plain nut had been installed.

He checked the IPB and confirmed that it was the wrong nut. After installing the correct one, he checked the rest of the squadron's aircraft and found three out of four had the wrong nut installed. In each case, the aileron artificial-feel system could have malfunctioned. AMS3 Crouch was selected COMAEWWINGPAC's Pro of the Week.

AMHAA Robert Shier
**VAW-78**

While washing an E-2C, AMHAA Shier noticed a small split in the paint on the underside of the horizontal stabilizer. He reported the crack to maintenance control, who had the area sanded and NDI-tested.

An inspector found a 4-inch crack in an area that requires 100-percent strength. If the crack had gone undetected, the skin could have separated from the aircraft.

Cpl. Stephen J. Valois
Cpl. Brad C. McNamee
**HMLA-169**

Following a hung start on No.1 engine, the pilot of an AH-1W aborted the start. Despite closing the throttle and motoring the engine with the starter, the measured gas-turbine (MGT) temperature continued to rise. Cpl. McNamee, the PC, checked the engine for abnormal indications.

Cpl. Valois, working on a UH-1N, noticed flames coming from No.1 exhaust. He alerted the pilots, who used engine-fire procedures with no effect. Cpl. McNamee and Cpl. Valois manned flight-line fire bottles and directed Halon mist into the intake and exhaust. The fire went out as the pilots left the aircraft.

AEAN Gerald Geluz
**HSL-43**

AEAN Geluz found a minor discrepancy on a stabilator while doing a daily-turnaround inspection on an SH-60B. Checking further, he found the end-attachment fitting on the stabilator's lower piston-rod wasn't safety-wired and the limit switches' cover was missing. The find is even more remarkable because he discovered this dangerous condition after senior personnel had inspected the area.

AME3 Tony A. Irish
**VP-68**

Doing a final TFOA check on a P-3C, AME3 Irish discovered a cracked self-locking nut in the starboard MLG's rim. Despite a heavy operational commitment, a VIP on board and being behind schedule, he wasn't swayed by the pressure of the moment. He told the aircrew.

Undetected, the mainmount could have failed. Petty Officer Irish received the Navy and Marine Corps Achievement Medal.

AD1(AW) Lawrence L. Stevens
**HS-2**

During a scheduled inspection of an SH-60F, AD1 Stevens found a slight irregularity on a Thomas coupling on No.1 engine's high-speed shaft. Closer examination revealed the Thomas coupling was severely cracked and likely to fail.

Petty Officer Stevens found this critical discrepancy even though it wasn't in the inspection area. His astute discovery underscores the value of the 18-inch rule.

# How *Fast* Can You Duck?

*by LCdr. Bob Fredrickson*

Four or five times a year, someone in a P-3 extends or retracts flaps onto ladders, check stands and power units or tries to squash somebody in a flapwell. No one is immune; aircrewmen and maintenance people of all experience levels have caused flap accidents.

The danger area is immediately behind and under the flaps, next to a warning line on the fuselage. It isn't identified as a danger area in NATOPS. There are no warnings, cautions or notes on operating the flaps. The only references to the area are in the ground-operations sections of the positional (both aircrew and maintenance) PQS books.

To become PQS-qualified, you must discuss the flapwell as described in NATOPS and local directives. Unfortunately, this leaves the discussion of machinery and associated hazards, warnings and procedures up to the qualifier. Most people learn about moving flaps during aircraft FAM at the FRS. Of course, the longer you've been around, the more you learn by helping preflight, postflight and maintain the airplane and listening to accounts of past

incidents. Before long, extending and retracting the flaps becomes an easy part of ground operations. Then your squadron crunches a flap, and you have to figure out why it happened and how to keep it from happening again.

Before you move the flaps, have an outside observer clear the area and then signal the cockpit to move the flaps. Sometimes the clearing and signaling breaks down. The outside observer doesn't see equipment or people near the flaps from his vantage point. The clearance signal is usually given from a point abeam or ahead of the flight station approximately 50 feet from the flapwell. Propeller blades, landing gear and the bottom of the fuselage can block the observer's view of the flapwell. Darkness, snow, rain, and lack of depth perception can cause problems. People and equipment can move into the area after the clearance inspection but before the flaps are moved.

The danger area is immediately behind and under the flaps.

During preflight, flight engineers lower the flaps to the "land" position to check for flap asymmetry, then retract them to the "takeoff/approach" position for the rest of the inspection. The signal given by engineers conducting these checks is "open flaps" followed by hands in the T-position. However, some people might interpret this to mean, "lower the flaps to takeoff position."

Don't cycle the flaps with SE near them. If SE is in the danger area, move it before you cycle the flaps.

Finally, if either the person in the cockpit or the outside observer is unsure of what the other is requesting by hand signals, don't do anything. Stop and discuss face-to-face what's going to happen next. It's just a short walk up or down the ladder to clear up any uncertainties, and that's a lot easier than repairing a dent or tear in the airplane.

**...teach specific SOP and identify the flap area as hazardous. Make flap movement a mandatory two-person event.**

We have to teach specific SOP and identify the flap area as hazardous. Make flap movement a mandatory two-person event — one on the ground in front of the airplane, and the other in the cockpit. Make a walkaround inspection of the flapwell mandatory before the outside observer can give clearance to move the flaps. Once clearance is given, ensure the outside observer watches the flaps in transit and signals if a problem crops up. Make sure the person in the cockpit watches the outside observer when the flaps are moving.

We move the flaps many times during preflight and maintenance without problems. But doing many incident-free movements can lead to a familiarity that can convince us to shortcut precautions. Then it's just a matter of time before you're writing your own hazrep and telling a story that's been told too many times. ◄

LCdr. Fredrickson is assigned to VP-1.

# Indy 500 Tractor Quals

*by Cdr. Guy K. Miller*

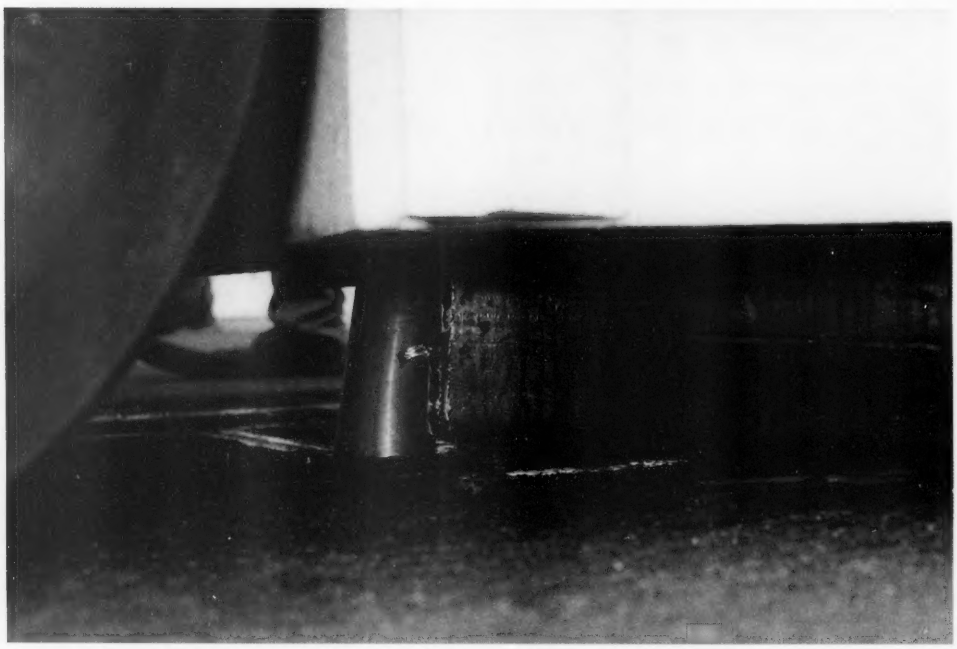
## How many day traps in a month do you need to stay qualified in an FA-18? How many on a tow tractor?

Near the end of a successful CARQUAL period, one of our new (still under instruction) tractor drivers (we'll call him Mario in honor of Mario Andretti) decided to solo his first day on the job. After respotting a Hornet on the bow with his supervisor monitoring him, Mario decided to see what this baby could do. So he put the pedal to the metal and headed aft to elevator No. 3, leaving his supervisor in the dust.

With the deck wide open and a vision of winning the Indianapolis 500 on his first try, Mario was a model of total concentration. No one, not even the elevator safety observer, was going to stop him from crossing that red and yellow "finish line" painted around the elevator stanchions.

Most aviators would love to get an OK 3-wire grade on their first approach to an arrested landing on a carrier. Mario was on course and on speed for his first arrested landing on the elevator No. 3 stanchion wire, unbeknownst to him. Well, Mario not only caught the 3-wire, but the center stanchion on its way up. Just as the front end of the tractor crossed the finish line, the stanchion came up, impaled the tractor's fuel tank, raised Mario and the tractor to new heights, and spilled JP-5 all over the deck.

The whole ship was impressed with Mario's performance, so just like after the Indianapolis 500, someone took pictures and interviewed Mario, and there was all kinds of excitement down on pit row. What



A wannabe Indy-500 driver got his fuel tank speared by an elevator stanchion.

The "race-tug" is being lifted off an elevator stanchion that it attacked.

did they learn about Mario? This was his first day driving a tractor — he was still under instruction and required to have his supervisor with him at all times. Second, he was going way too fast for his experience, which required all the concentration he could muster just to keep his vehicle pointed where he wanted to go. Third, Mario was not aware of things going on around him on the flight deck.

Was Mario totally to blame? Not really. Where was the elevator's safety observer and the elevator operator? The observer was out of position because of tractors and towbars stacked in front of the elevator operator's field of view. So, even though the operator could see the safety observer standing to the right of the elevator, Mario couldn't see him until it was too late. The elevator operator never saw Mario coming; he raised the stanchions on a signal from the safety observer.

There were a few lessons reinforced and learned here:

•If you are under instruction, stay with your supervisor.

•Don't drive faster than your experience level allows.

•Be aware of what is going on around you; don't get tunnel vision.

•Keep signaling devices such as whistles or lights in your mouth or your hand for immediate use.

•When driving ground-support equipment around elevators, don't drive or park over the stanchions.

•Flight-deck control must keep everyone informed of what is happening on the flight deck. Perhaps a 5MC announcement that the stanchions were coming up on elevator No. 3 might have stopped Mario.

Only 99 more traps and Mario gets his Centurion patch, but for now, he's grounded until he completes remedial training. ◄

Cdr. Miller is the safety officer aboard USS *John F. Kennedy* (CV 67).

# His Heart Was in the Right Place, His Finger Wasn't

*by Ltjg. Tom Robson*

It was supposed to be a simple aircraft move: an A-6 from a hangar to the line after some routine maintenance. Armed with whistles, the move crew descended on the aircraft. A plane-captain trainee was in charge, supervised by a qualified PC.

The crew opened the hangar doors just enough to pull the Intruder out into the bright spring sunlight. As the tractor rolled forward, the crew intently watched the clearance from the hangar doors. The simple move was going exactly as planned.

The A-6 began slowly emerging into the sunshine, and the port-wing walker ensured that the folded port wing would clear the hangar door. The PC trainee decided that the aircraft needed turning to the right to clear something on the hangar deck. With the 32,000-pound aircraft mostly out of the hangar, the nose swung right and the tail left.

A wing walker moved to the hangar door, concerned about the horizontal stabilizer hitting it. The nose continued to swing right and the tail left, making things worse. With less than a foot of clearance remaining and closing, the wing walker blew his whistle to stop the move. Seeing that the jet wasn't going to stop quickly enough to avoid hitting the door, he tried to push the hard-rubber door seal out of the way to get sufficient clearance. As he did this, the horizontal stabilizer crushed his finger.

Just a simple move, right?

The wing walker held his crushed finger to his chest and raced to maintenance control. A senior chief at the scene, seeing a bloody trail behind the man, grabbed him and drove him to the base emergency room. An airlift to a nearby hospital was the next order of business.

Doctors amputated his right index finger between the first and second joints.

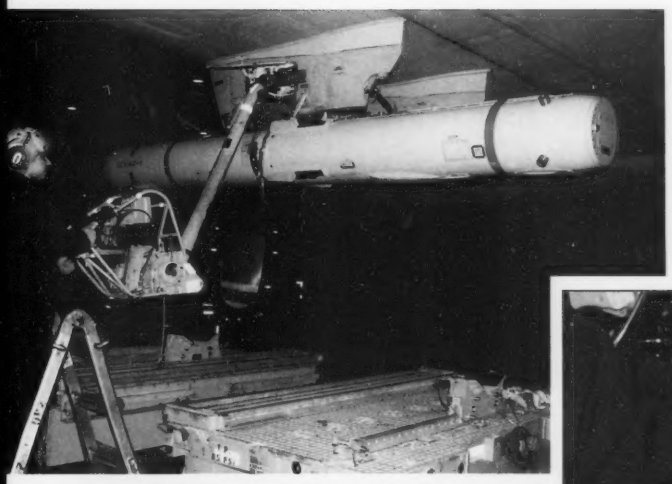
We could have avoided this mishap if just one person of the seven-member crew had blown a whistle and said with some authority, "Hey, we have to open the hangar doors some more." Instead, this was another chain of events that desperately needed a broken link.

Ltjg. Robson is the ground safety officer for VA-196.

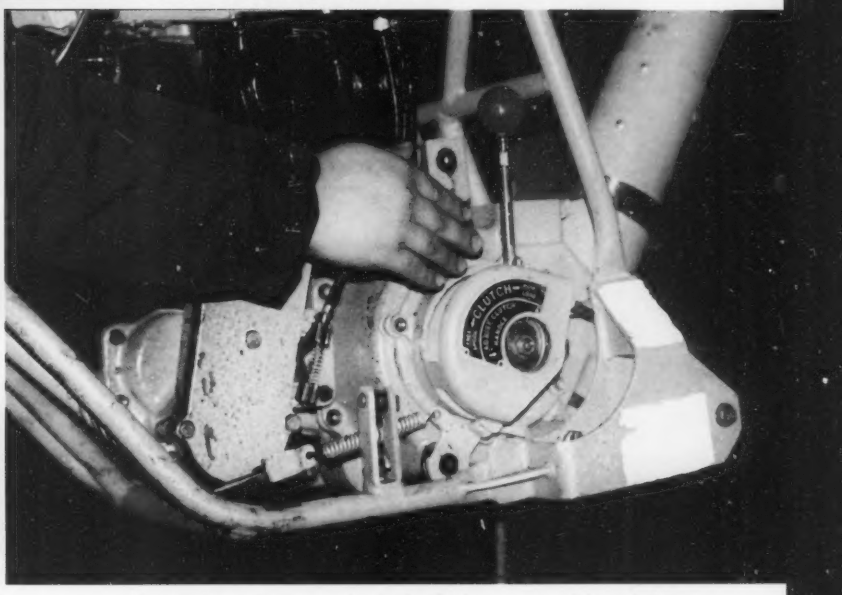
A wing walker lost his right index finger trying to prevent an Intruder from striking a hangar door as it was being towed out of the hangar. When he tried to push the hard-rubber door seal out of the way, the horizontal stabilizer crushed his finger.

# It's Red for A Reason

*by AO1(AW) Brit M. Borovac*



The ordnance hoist attached to the pylon supports the weight of the weapon until it is locked in the hooks of the bomb rack. Moving the red lever places everyone close to the weapon in danger of getting squashed.



As I headed toward the hangar doors, I saw the ready-alert crew hanging an AGM-84 training load on their P-3. Just before I passed through the doors, I heard the cable screaming off the ordnance hoist. When I looked back at the load team, I saw a 1,000-pound Harpoon hanging from the front suspension lug, with the tail of the weapon just inches from the weapons trailer.

How could this have happened? Operator error. After the training weapon was in the bomb rack's hooks, the team leader and the hookup man inspected the bomb rack to make sure the hooks were latched. The hooks were verified, and the leader commanded, "Ease hoist; ensure hooks support the missile."

The hoist operator, a seasoned ordnanceman, tried to ease the cable tension by using the hoist-brake lever, which is the normal procedure. The hoist brake would not release the cable, and without saying a word to the QA-safety observer about the hoist not working right, the hoist operator pulled the free-spool lever to ease the cable tension. Under the weight of the missile, the aft hook of the bomb rack failed, and the tail of the missile swung down out of control. Fortunately, no one was injured, and the damage to the bomb rack and training shape was minor.

The hoist's free-spool lever, which is painted red to indicate danger, is supposed to be used only when manually removing cable from the hoist. By pulling the lever, the operator relinquished control of the weapon and left it to gravity. Had the aft hook not failed, no one would ever have known what the hoist operator had done.

Follow SOP to the letter, know your equipment, and seriously consider the consequences of your actions when you're faced with an unusual situation. ◄

AO1(AW) Borovac is safety petty officer for VP-8.

# A 13-Foot Monster in a 10-Foot Space

*by ASC(AW) Bill Lee*
*and*
*Cdr. S. C. Jones, Jr.*

*One of our two rough-terrain, 36,000-pound, articulating, 10K forklifts was wedged between the deck and the overhead in lower vehicle-storage. We were surprised that the damage was not greater and that the driver needed only a couple of stitches.*

LHDs are designed to rapidly move cargo from one deck to another via a series of four ramps. Since our primary duty is to embark, transport and land Marines with all their diverse equipment, a wide range of material-handling vehicles use these ramps.

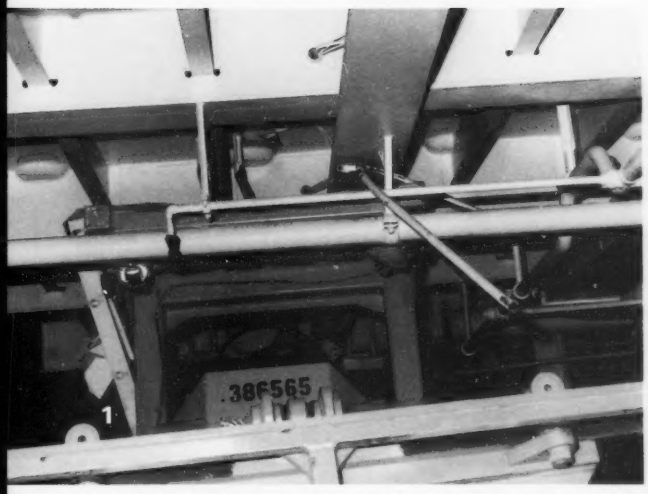
It was Sunday afternoon with only the duty section aboard. Engineering was preparing to test the magazine elevators for our next ammo offload. They'd staged several thousand pounds of weights on the pier and brought several weights under 4,000 pounds each onto the ship using 4K RT forklifts.

All that was left were a couple of weights that exceeded the load limit of the forklifts. The engineers went to the SE shop and requested a 10K forklift and a driver; no one in engineering had a license for the 10K.

A PO1 and a PO3 (an experienced forklift driver) did the pre-operational inspection on the big forklift. The PO1 told the PO3 to check his brakes on the way down, make sure the load was centered, and keep the big forklift in first gear. The 10Ks are four-wheel drive and geared low. The PO3 figured it would probably go down the two 100-foot, 15-degree ramps very slowly — approximately 5 mph.

The PO3 donned his hard hat, fastened his safety belt, did a functional check, noted the brake pressure at 60-80 psi, activated and disengaged the audio-visual brake-pressure alarm, and was ready to go. Engineering placed spotters at the top and bottom of each ramp, and the PO1 from SE was there just to lend that warm, fuzzy feeling. While all of this was happening, the duty fire marshall was mustering 20 people on the quarterdeck adjacent to the port ramp.

As he approached the first ramp the driver checked his brakes, which checked good. All foot traffic had been stopped, and the ramps were clear. As the 10K came over the top of the ramp, the driver checked his brakes a second time--still good. He started the descent. Approximately 15 feet down the ramp, he applied brakes and — *Oops! No brakes!* The adventure began: a freewheeling ride in an 18-ton forklift down a15-degree ramp. The driver pumped his brake — nothing. He thought, "Why won't the transmission hold?" *(One possibility is that the operator panicked during the descent and pushed the "inch" pedal, which would have disengaged the transmission and automatically engaged the brakes. The inch pedal is directly to the left of the brake pedal. Other operators on the ship said they always used the lowest gear and coasted down the ramp because the 10K was geared so low they couldn't lose control.)*

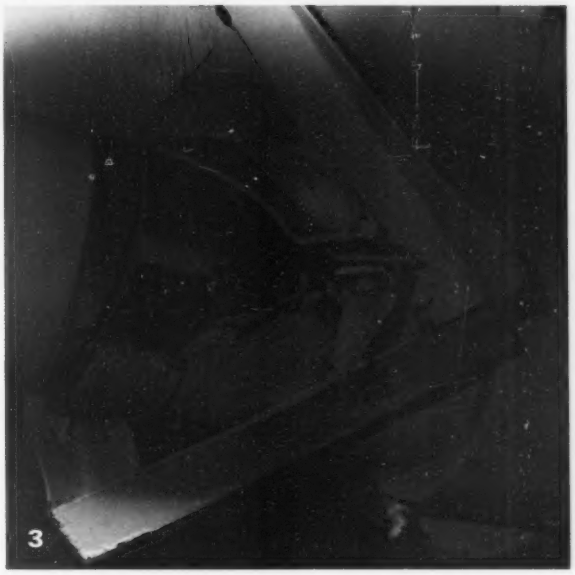



The cab hit the overhead (1), bending an air vent 90 degrees (2), then struck and twisted a support for an 18-inch fire main (3). He was rolling very fast. The giant machine was out of control and doesn't handle like a Ferrari. As it neared the bottom of the first ramp, the forklift was bouncing 3 to 4 feet off the deck. The PO3 was trying to steer away from the people on the quarterdeck, and they were scattering like ants. Straight ahead was a conflag station that the forklift would not clear. It was up to the driver and his ability to control the runaway. With quick reflexes and sheer

fear, he managed to turn slightly to the right and point the forklift toward the ramp to lower-vehicle storage.

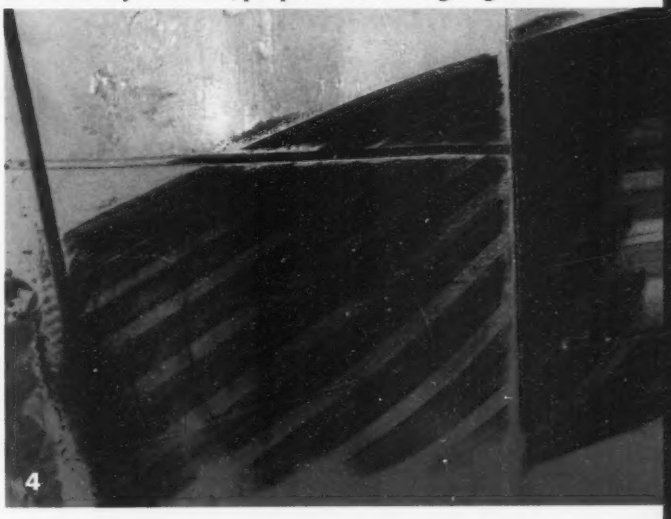
As the forklift entered the ramp, it bounced off the bulkhead and hit a one-inch cable used to raise and lower the ramp. Four-foot-high tread marks were left on the bulkhead (4) and the cable was almost severed. At the bottom of the ramp, the cab tore out two fluorescent-light assemblies and part of the sprinkler system, finally denting and almost puncturing a six-inch CHT line.

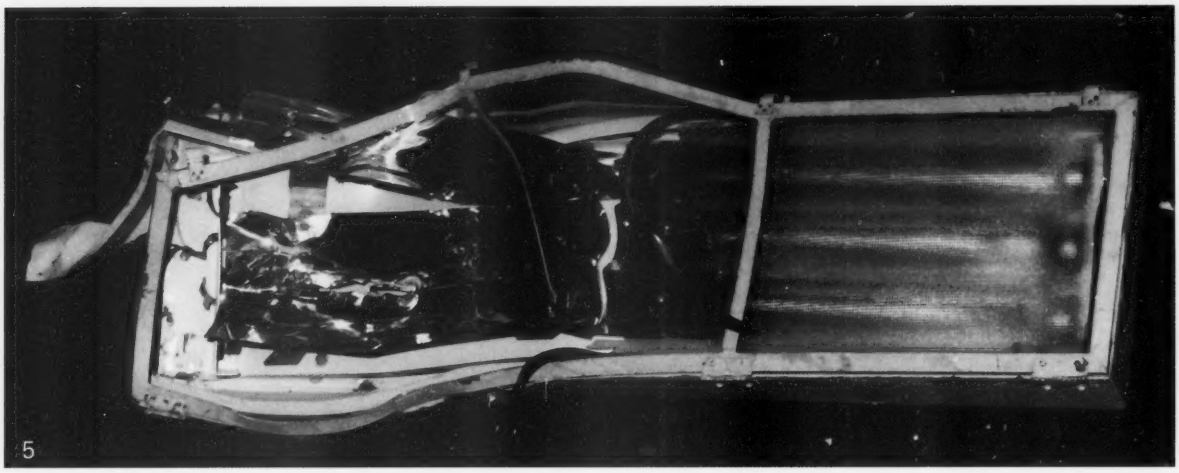
Ever tried sticking a round peg in a square hole? Try driving a runaway monster with a 13-foot clear-




ance into a space with a 10-foot overhead. After bouncing off the bulkhead, shearing a cable off the ramp door, tearing out light fixtures, damaging several feet of sprinkler-system piping, (next page, photos 5 and 6) and scaring the guys on the pay phones in lower V half to death, the forklift came to rest against an I-support beam.

Somehow, the PO3 managed to unbuckle himself, climb off the machine, limp to the top of the ramp and lie down. By this time, people were starting to gather





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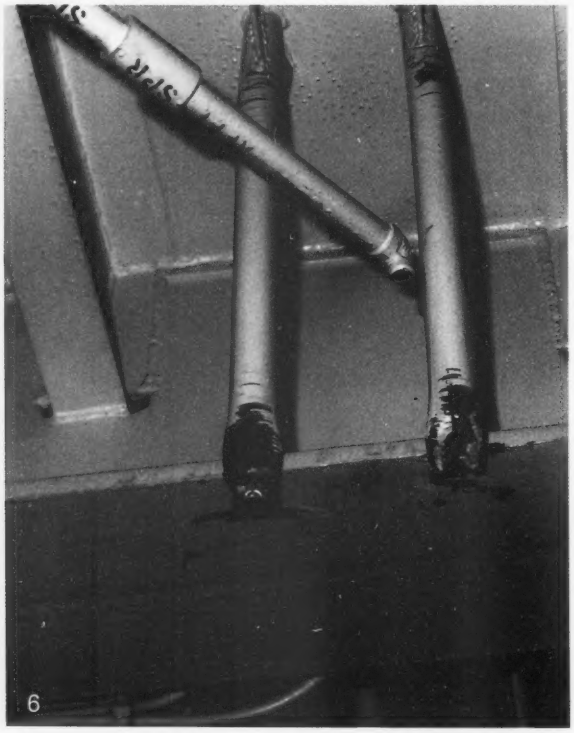
and somebody called medical. The PO3 was treated and taken to the base clinic. He had several cuts on his face and arms, was sore and shaken. But, with no broken bones and no severe injuries, he was very lucky.

We found out later that the forklift had several discrepancies including a malfunctioning air governor, a broken fitting and a large accumulation of rust in the air-delivery system. None of these items are covered by the MRCs during PMS. We also found the audio-visual alarm, which (according to the tech manual) activates until the system reaches 6 psi, was set wrong at the factory. In reality it should be set at *60* psi. The pneumatic brake system has a pressure gauge that reads up to 150 psi. The operator had felt comfortable driving the forklift because he had approximately 50 psi showing on the gauge and the operator's manual said 6 psi was the minimum. Brake tests before starting down the ramp had assured him everything was working. The SE shop said that this forklift had always had lower brake pressure than our other 10K forklift.



6

We had two identical items of equipment, yet no one questioned why there was a significant difference in the brake-accumulator pressures. We also had a manufacturer's publication with a critical error. A bleed valve to drain moisture from the accumulator tank wasn't even mentioned in the MRCs.

During a phone call, a manufacturer's representative made a remark about the 60-psi minimum-operating requirement for the brakes. When we pointed out his company's publication said 6 psi, he was surprised. After he consulted his copy of the publication, he said the 6 psi was a typographical error, and that they would have to change it to 60 psi.

We turned the forklift over to public works. They disassembled the brake system and found a corroded brake-accumulator tank and a cracked pneumatic line that prevented the system from building up pressure.

Fortunately, the operator had worn his PPE and buckled his seat belt. If he hadn't buckled up, the multiple crashes could have thrown him from the vehicle and crushed him. By using safe practices such as wearing hard hats, seat belts, using qualified personnel and spotters to do a routine job, we probably saved a life or two. But even when you do everything by the book, things can go wrong.◀

Cdr. Jones and Chief Lee are ship's company on board USS *Kearsarge* (LHD 31).

# Arcs & Sparks

*by AE3 David R. Gullick*

CAP CK OK
111194
BATTERY STORAGE, AIRCRAFT
24 VOLTS, MAINTENANCE-FREE
MIL Part No. D8565/5-1
Replaces Replaces M83769/5-1 & M83769/5-2
Maximum Weight 36.4 Kg
Military "C" Rated Capacity 30 AH/1HR/21°C/18.0V
National Stock Number 6140-01-266-1833
Contract Number DLA400-90-C-5372
Date and Lot Code 0394-02
Battery Serial Number P 12888
Manufacturer's Name Concorde Battery Corporation
Date Battery Placed in Service
Warranty Expiration Date Not Applicable
It's better to wear an apron than to weld yourself to a battery.

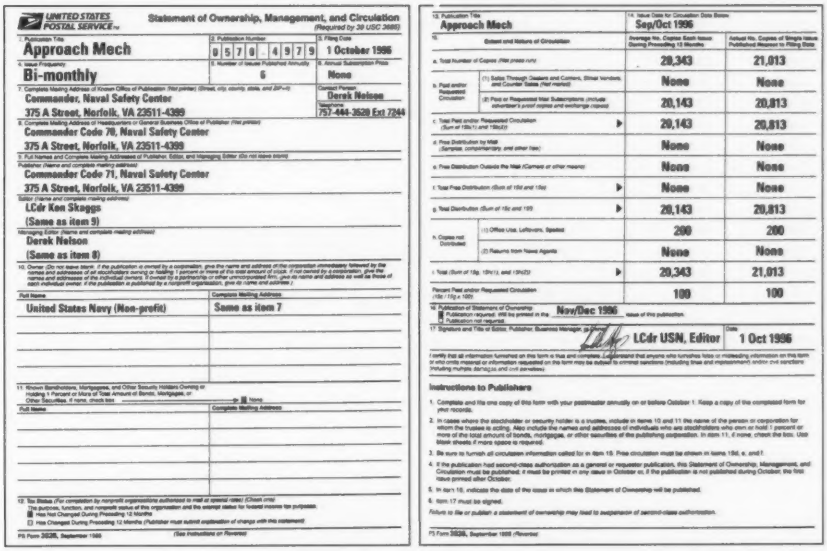
**I'm** an electrician with most of my four years' experience in the C-9 community. I was recently transferred to a C-130 squadron where I knew the work would be challenging and the op tempo high. My supervisor sent me to an aircraft to remove a maintenance-free, lead-acid battery. Removing the battery seemed routine and I felt comfortable with the task.

I didn't have a safety observer, and I didn't wear protective clothing. Both precautions are listed in the 17-15BAD-1 manual, along with specific guidelines and safety notes. The warning I should have paid attention to reads, "Ensure that battery receptacle covers are installed prior to removal." I removed the battery without installing the receptacle cover.

Because I wasn't wearing a rubber apron, the battery connector touched my belt buckle. The resulting short threw a bright arc toward my arms. I wasn't hurt, but my buckle sure took a beating. The connector had molten brass melted to the leads and the entire area was blackened.

**Lessons Learned:** Never shortcut or ignore the MIMs; use a safety observer when working with electricity; wear your PPE. ◄

Petty Officer Gullick is assigned to VR-62.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# CROSSFEED

*Cdr. Jim O'Dell*
*Head, Aviation Maintenance and Material Division*

*AMCS(AW/NAC) Ed Winnett*
*Editorial Coordinator*

## ALSS

### Ejection-Seat Primer

*by AMEC(AW) L. Beilharz*

In FY96, ejection seats killed one second class petty officer and seriously injured a corporal who were doing seat maintenance without using the NAVAIR checklist.

AME "A" school teaches students the importance of using checklists and the MIMs before and during maintenance on an ejection seat. They are necessary tools whether you're on the flight deck, hangar deck or the line.

AMEs also get sent to NAMTRADETs to train on specific seats and aircraft. Instructors again emphasize that the checklist is essential. Yet we are still careless with our safety and the safety of the aircrew who depend on the seat. In two recent incidents during inverted flight, an ejection seat slid up the rails and hit the canopy. The seats had not been latched correctly to their ejection guns during installation.

Three AMEs have died and two others have been seriously injured since 1981. The seats they were working on fired because these people weren't following SOP. Point: If you don't have the required number of people for the job, the correct ordnance certification, the right pubs, checklists and tools for your seats, stop! Ejection-seat maintenance has to be done right the first time; second chances are seldom granted.

Supervisors must continue the new AMEs' training by giving them the tools, pubs and the OJT necessary to do their jobs safely. Shortcuts are never authorized.

*Chief Beilharz is a maintenance analyst at the Naval Safety Center.*

## LINE

### The $79,000 Ball Cap

*by CWO5 Teddie A. Gregory, USMC*

An A-6E returned to the transient line after an aborted engine run-up for takeoff. It was 15 minutes after sunset. Three civilian-contract, transient-alert (TA) personnel got out of a follow-me vehicle to park the aircraft. As they pinned the landing gear, a troubleshooter arrived and climbed the pilot's boarding ladder to determine the cause of the abort. While discussing the problem, the troubleshooter and pilot noticed one of the TA people approaching the nose-gear area. The troubleshooter tried to get the man's attention by waving his arms, but it didn't work. The troubleshooter climbed down the boarding ladder and saw that the lineman was carrying a ball cap in his hand, but he was too late. When the lineman reached the port intake, his glasses slipped from his face. When he tried to catch his glasses, he dropped the ball cap. It got sucked into the intake and FODed the engine. The repair cost $79,000.

The incident should never have happened. Training teaches us and common sense tells us to avoid intakes while the engines are running — especially if we're not wearing proper attire.

*CWO5 Gregory is the branch head for power-plants analysis at the Naval Safety Center.*

# AVIONICS

## Beep! Beep!

*by GySgt. Walter Nowocin*

No, it's not the Road Runner, but like Wiley Coyote, I jump when I hear those shrill beeps. Technicians doing continuity checks on wire cable with Fluke hand-held multi-meters (77AN or 27 Series) are the source of my anxiety. I jump because the continuity (diode test) mode is so misused and the least understood. Test the next Road Runner you catch by asking these three questions about the continuity mode:

1. What does the (meter) reading measure?
2. Why does the meter not read any value between 2.0 volts and O.L. (overload)?
3. How many different tones are there?

Connected to a 1.4k ohm load, The Fluke Model 77/AN with resistance mode selected reads 1.4k ohms. The same meter with the continuity mode selected measuring the same load reads approximately 0.7k ohms. The Fluke Model 27 measuring the same load in the continuity mode indicates approximately 0.6k ohms. Notice the different readings and the lack of a symbol to the right of the voltage reading.

Photographer: Mr. Paul D. Young, MCAS Beaufort photo lab.

If the technician can't answer the questions, he shouldn't be using this function. The switch settings in photos 1 and 2 are pointing at a diode symbol. That makes sense when you realize that the meter is reading voltage and not resistance (answer 1). This mode was designed to test semiconductor bias by putting two volts across a semiconductor junction. That's why the meter readings range from 2.0 v to O.L. to indicate an open junction (answer 2). If you are checking for continuity, you should use a meter function that reads resistance(ohms). Notice the ohm symbol after the resistance reading in photo 3.

"But, I'm going by the tone, not the readings," a technician might counter. "It gives me an audible indication of an open or short."

Let's talk about this audible indication for a minute. First, there are two tones — not one (answer 3): a continuous beep and a single beep. That is the first problem. The second problem is that the beeps correlate to semiconductor-junction conditions, not resistance conditions. (See the table below.)

The continuity mode has limited application. Don't use it to check continuity because it isn't realistic to rely on sound. The best way to verify continuity is still to measure resistance. Measuring ohms is slower, but quicker isn't necessarily better.

*GySgt. Nowocin is the PME chief at MALS-12.*

| Tone | Semiconductor junction condition | Meter readings | Equivalent resistance range[1] |
|---|---|---|---|
| Continuous Beep | Shorted | @.3 v or less | 0-150 ohms |
| Single Beep | Forward Bias | @.6 v | 150-1.k ohms |
| No Beep | Reverse Bias | @1.0 v | >1.k ohms |

[1] *Resistance ranges were obtained by using standard resistors from an AIMD calibration lab to determine tone correlations. Several different meters were tested with similar results.*

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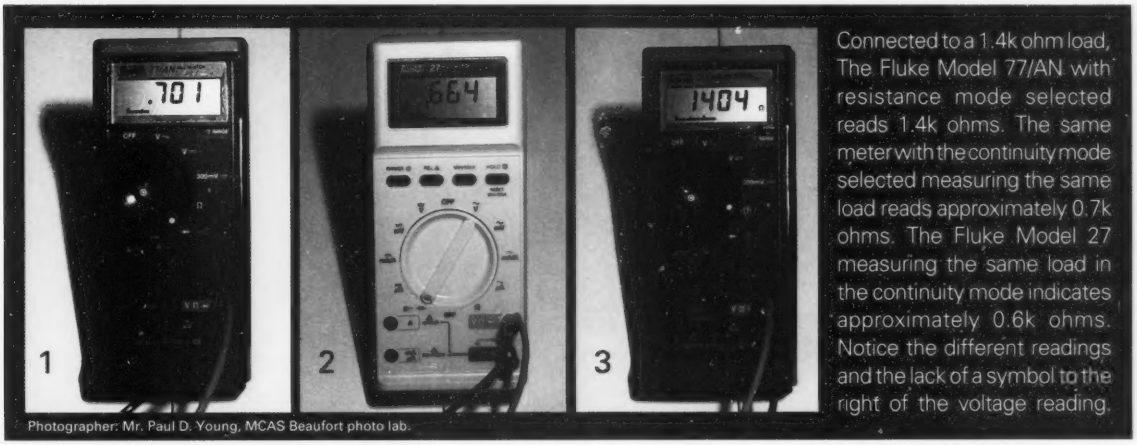


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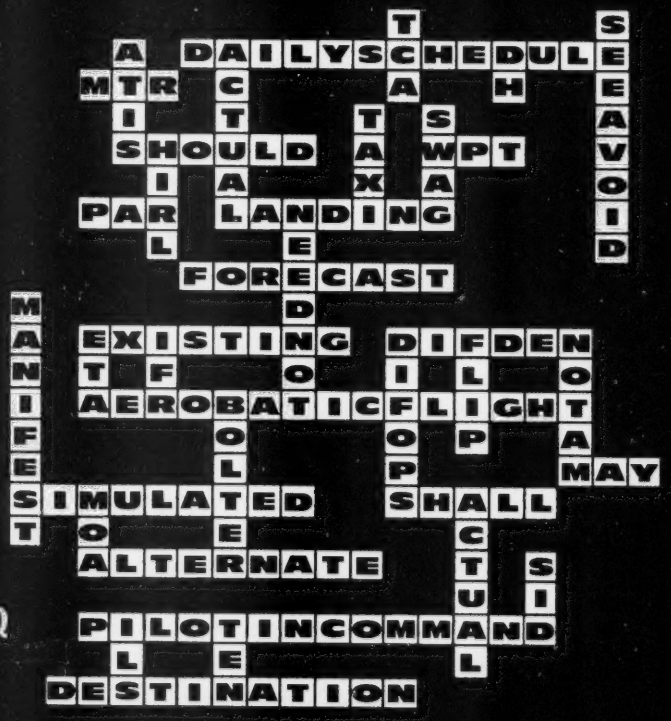
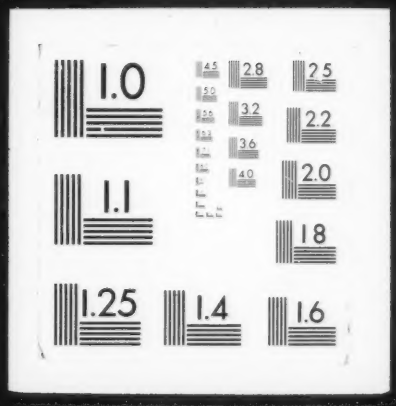
and responsibility. Company car with phone and oth bonuses.

**EDITOR-** *Approach Mech* Magazine, the Naval Aviation Safety Review, seeks motivated, fast-track 13XX to assume the role of Editor in Spring '97. Applicant should be familiar with the publication and have a desire to maintain it as the finest aviation safety periodical available today. Journalism and commercial art background a plus. Call (757) 444-3520 Ext. 7245 or DSN 564.

**STORYTELLER-** Local library needs a part-time storyteller for children's corner




**Answers to the OPNAV 3710.7Q Crossword Puzzle from the September-October issue.**


1.0
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1.6
2.8
3.2
3.6
4.0
2.5
2.2
2.0
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